

THE FAR EASTERN REVIEW

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YALE UNIVERSITY

MANILA AND SHANGHAI, FEBRUARY, 1912.

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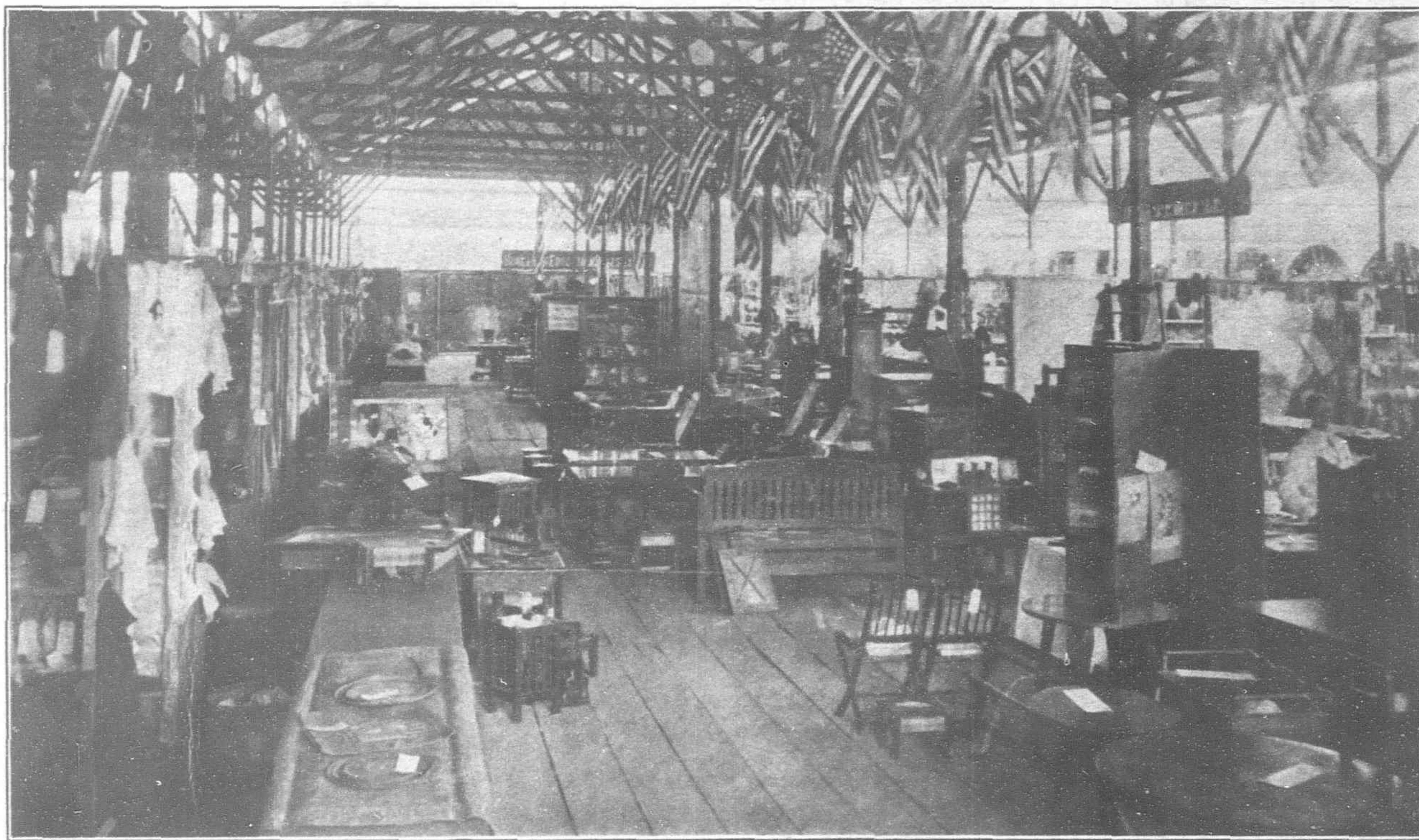
Complimentary

Russian Railways



The Philippine Carnival and Exposition

Industrial Development of Kyushu, Japan



Courtesy Bureau of Education

VIEW OF AN INDUSTRIAL EXHIBIT OF THE BUREAU OF EDUCATION AT THE PHILIPPINE CARNIVAL

The Chinese Situation



Industrial Instruction in the Philippines

Hongkong and Shanghai Banking Corporation

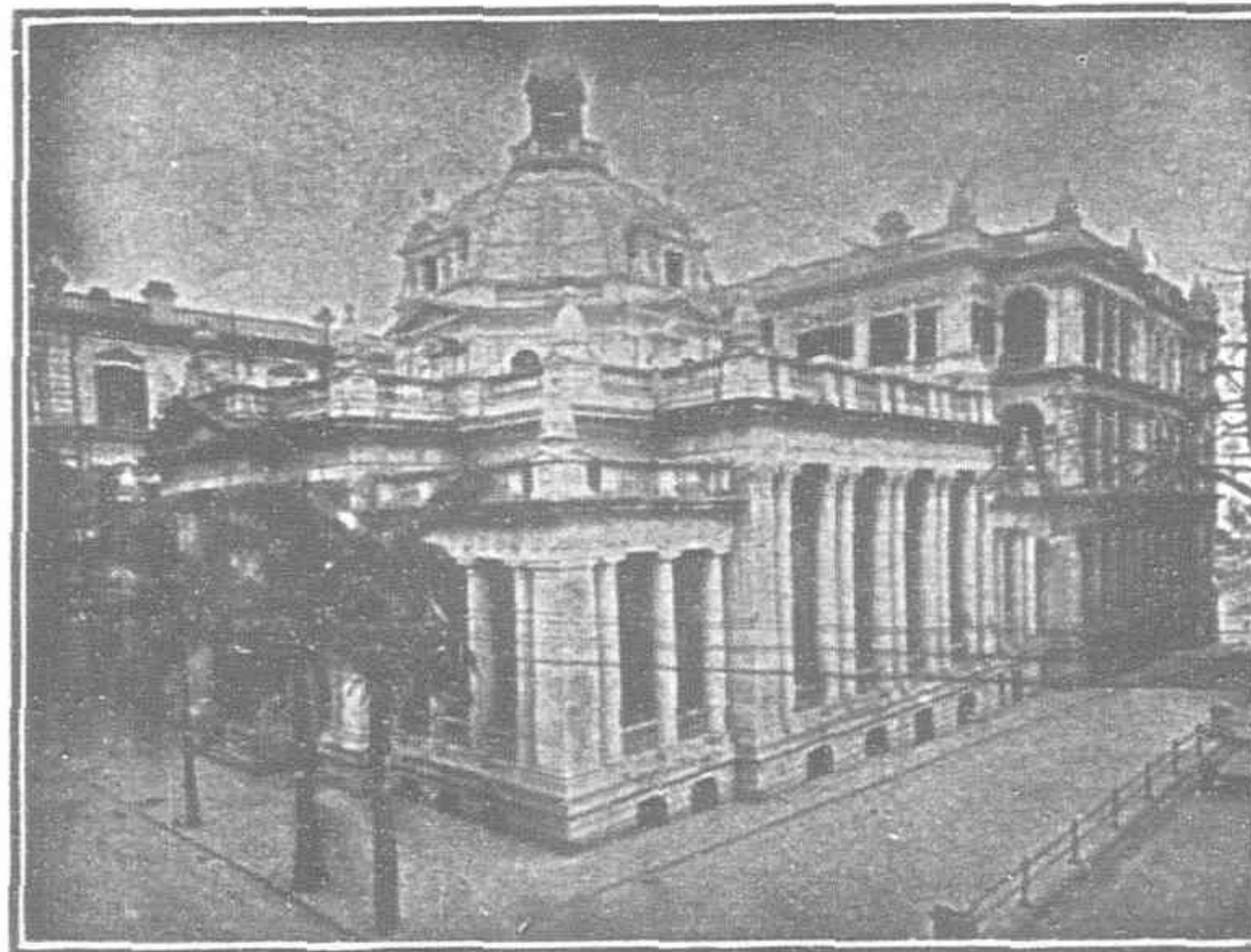
DEPOSITORY OF THE GOVERNMENT OF THE PHILIPPINE ISLANDS

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Sterling Reserve Fund.....\$15,000,000

Silver Reserve Fund.....\$16,750,000
Reserve Liability of Prop'rs.\$15,000,000

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GENERAL FOREIGN BUSINESS TRANSACTED
COMMERCIAL AND TRAVELLER'S LETTERS OF CREDIT ISSUED
BILLS OF EXCHANGE AND CABLE TRANSFERS BOUGHT & SOLD

THE FAR EASTERN REVIEW

COMMERCE • ENGINEERING • FINANCE

VOL. VIII.

MANILA, P. I., SHANGHAI, AND YOKOHAMA, FEBRUARY, 1912

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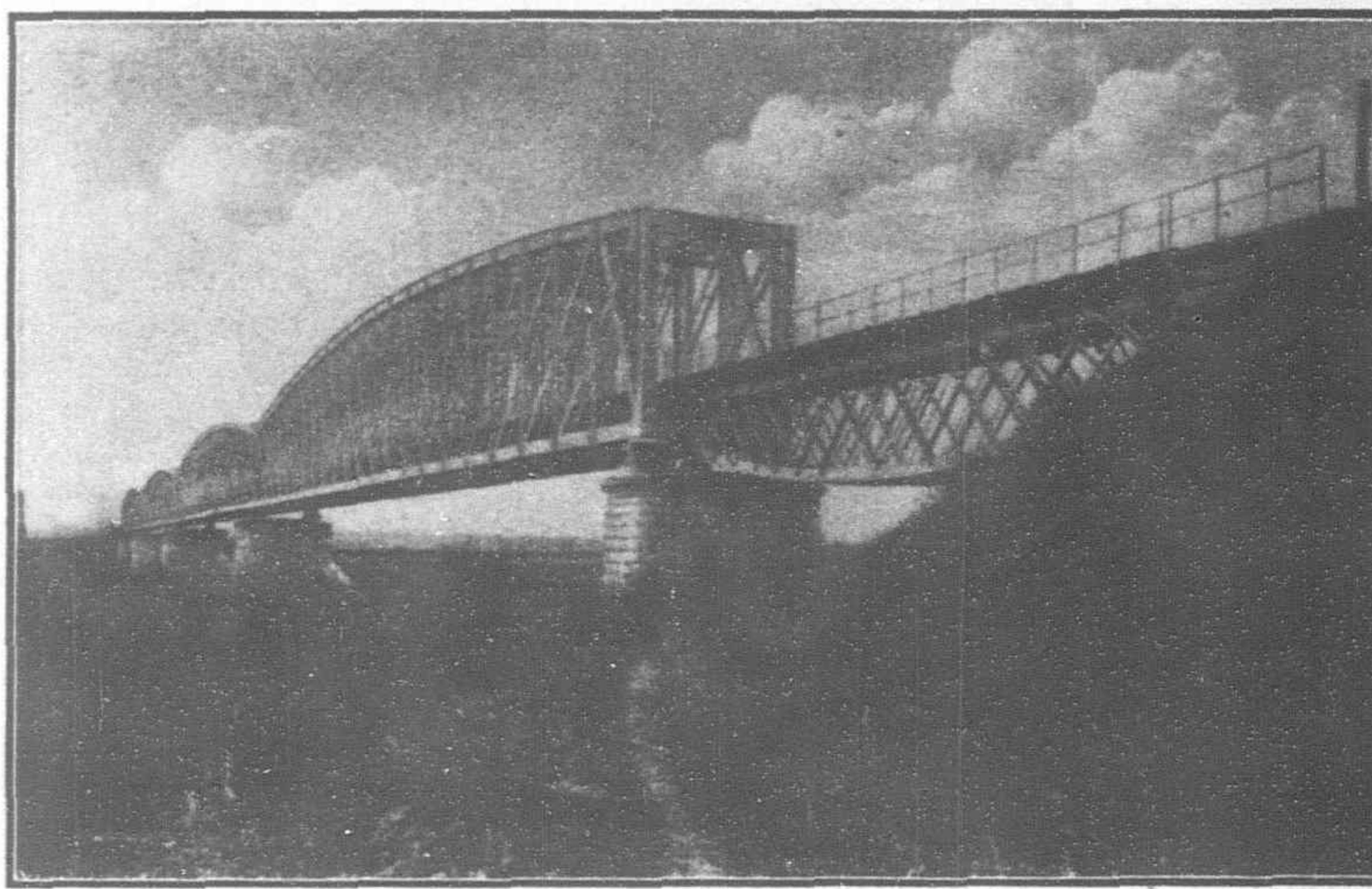
RUSSIAN RAILWAY NOTES

The total length of railways in Russia in 1908 (the latest available statistics) aggregated 40,213 miles, of which 27,426 miles, including 6,141 miles in Asiatic Russia, are exploited by the State and 12,787 miles are under private control, according to Consul General John H. Snodgrass stationed at Moscow.

vate companies, \$33,266,425 on the sums invested from resources of the Imperial Treasury \$46,660,545, or a total of \$143,260,125. The predominating type of loans is 4 per cent bonds listed at 81 per cent of the nominal value.

Receipts and Expenses.—The gross railway receipts for 1908 amounted to \$426,034,265, of

holders and other deductions, the results of the exploitation and operation of the Russian railroads for 1908 are expressed in the following deficit: Imperial railways, \$54,420,950; private lines, \$7,622,515; total, \$62,043,465. This sum is augmented by the expenses of maintenance of the imperial railways and the local branches



THE KOURGAN BRIDGE

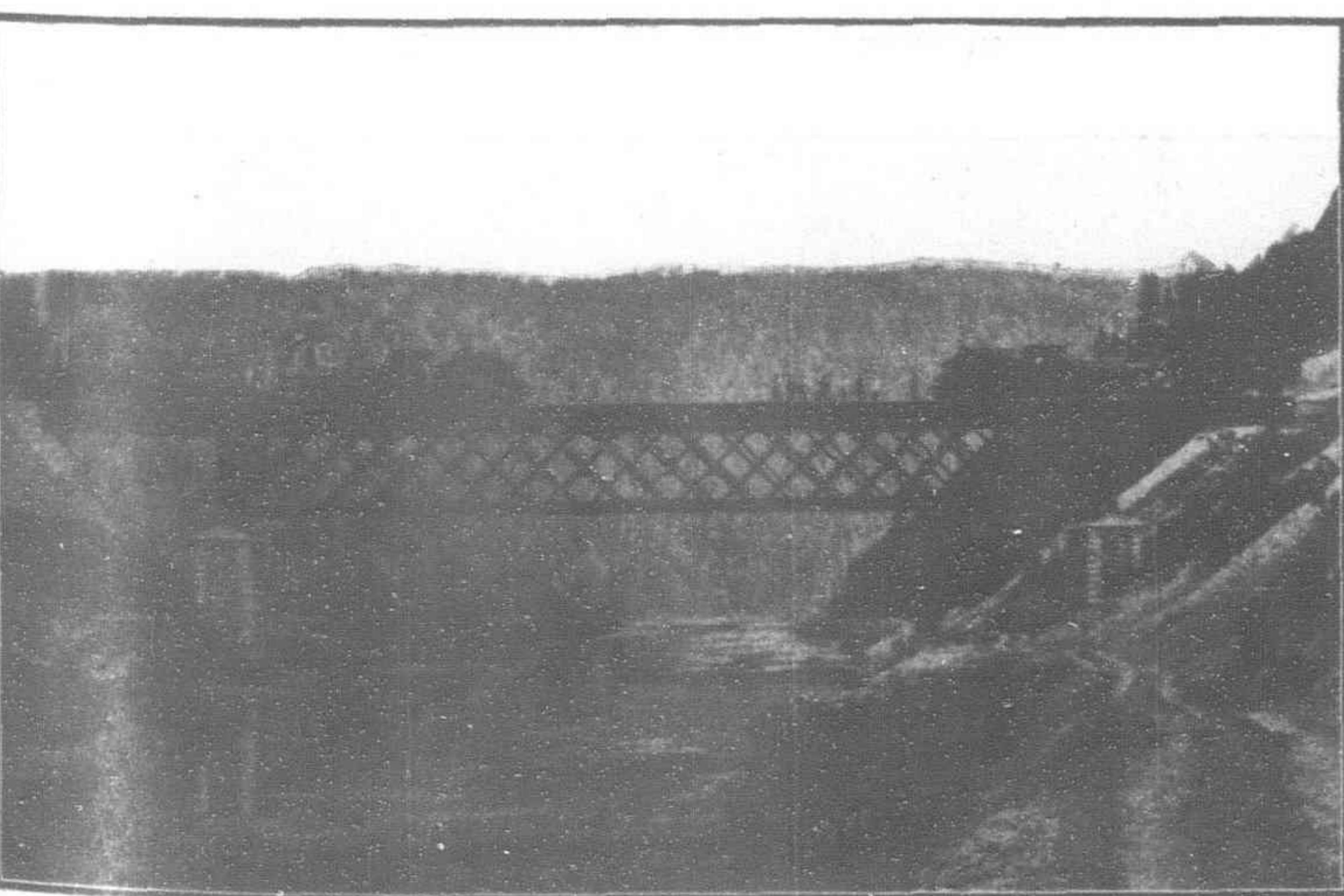
The total construction capital realized in bonds is \$1,888,440,000 for the State railways and \$917,730,000 for private roads, to which may be added \$1,045,450,000 for the building of State roads and \$13,390,000 for private railways, allotted by the Imperial Treasury.

The interest and sinking fund charges on this capitalization are as follows: Government loans, \$63,333,155; capital stock issued by pri-

which \$301,815,750 was derived from State lines and \$124,218,515 from private roads. The expenditures aggregated \$251,393,645 for State roads and \$89,378,250 for private roads. But as the payment for the construction capital is on a basis of 4.31 per cent, there was a deficiency of \$57,998,270 in the income for the liquidation of these obligations; adding to this the dividends paid to shareholders and bond-

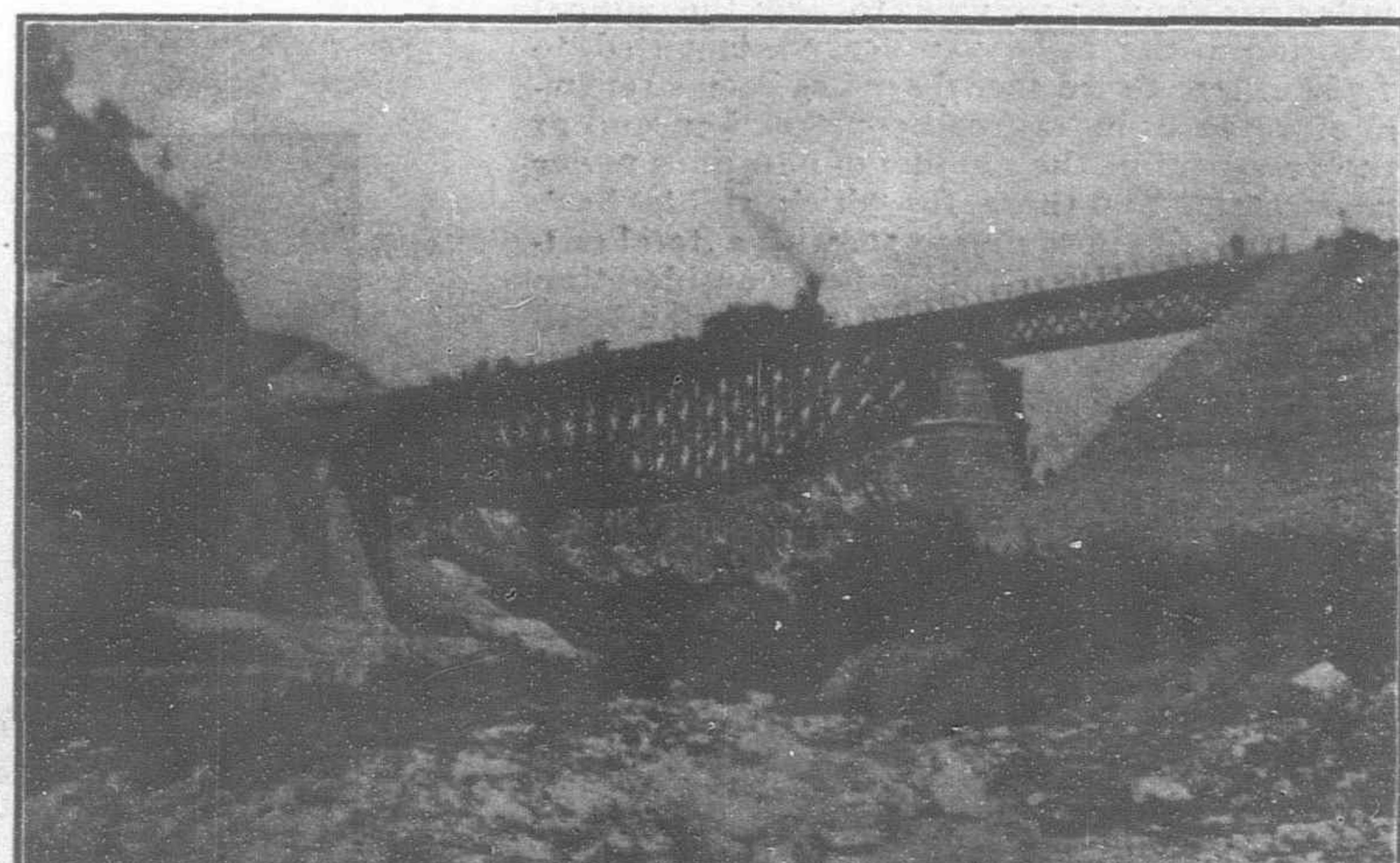
of the imperial auditor's department, so that there was in fact a deficit of \$62,930,940.

Lines yielding a profit were the Baskuntschak, the Libau-Romny, the Polessye, the Southwestern, and the Southern. All others were maintained at a loss of \$56,769,995. Of the private lines, the Warsaw-Vienna, the Vladicaucas, the Moscow-Kief-Voronezh, the Southeastern, and the First Corporation of



BRIDGE OVER THE RIVER SIM

SAMARA-ZLOTOOUST RAILWAY



BRIDGE OVER THE RIVER URUSAN

Branch Railways gave a net income of \$24,089,125. The remainder of the roads were operated at a small loss, so that in order to cover the State obligatory payments, the Imperial Treasury was compelled to pay out \$13,998,730.

A comparison of the results of the exploitation and operation of the imperial and private railways for the five-year period 1904 to 1908, inclusive, shows the following upward tendency of the yearly deficit: 1904, \$16,781,305; 1905, \$46,115,675; 1906, \$58,402,545; 1907, \$61,783,005; and 1908, \$62,930,940.

Causes of the Increasing Deficits.—The Russian press lately has been discussing the questions of railroad construction—and particularly the causes of the large and growing annual deficits. The proposition whether it is profitable to engage in railroad construction at all under the present unfavorable conditions has been mooted and the predominating opinion is in favor of retrenchment and better management of the existing roads before attempting new ones.

The arguments against the extension of the Russian railways, based upon the loss under which they are working, are effective and appear to be influencing certain members of the ministry, though the majority are in favor of building as fast as the money can be procured, and it is believed they will predominate for the next decade despite the many obstacles placed in their way. During the past seven years the roads have been operated at a loss of approximately \$250,000,000. In this amount the shareholders of the private railways participated to the extent of only about \$600,000 annually, the remainder being made up by the Government.

It is difficult to ascertain definitely the real reason for the increased annual deficit, but it is contended that a considerable part of it is caused by the low military tariff under which the Russian soldiers are transported. No data are obtainable from which the effect of the military rates upon the total results could be obtained.

New Lines Are Not Expected to Pay.—A considerable part of the loss of operation and maintenance also has been occasioned in late years by the building of new lines which are not expected to pay for a few years at least, as traffic is only developing, and, finally, consecutive bad crops from 1905 to 1908, inclusive, had a great effect on the revenue of the railways. In addition to these, for the greater part of the past 10 years, Russia's trade and industries have labored under most unsatisfactory conditions, all of which reflected adversely upon the railways of the country.

The Ministry of Ways and Communications recently gave the figures for 1909 in relation to the gross receipts from passengers and freight traffic, which show that the deficit was about \$20,600,600 less than in 1908.

Era of Railroad Building at Hand.—In the face of opposition and heavy deficits, Russia is entering upon a new era in railroad construction. During the last few years the average construction of new lines approximated 747 miles per annum; previous to that the annual addition to the railway mileage amounted to 1,769 miles. Since 1908 there has been a renewal of interest in railroad construction, and at the present time the number of new lines under construction and those for which rights have been granted approximate 50, with a total mileage of about 5,000. Taking into consideration the double-tracking of the Trans-Siberian Railway and other improvements of existing lines, it is thought that \$415,000,000 is now being spent for the development of new roads and improvements.

Still more pleasing prospects are in view. Nearly all the private companies are engaged in working out propositions for the construction of feeders and new trunk lines in the districts now operated by them. The Riazan-Uralsk Railway Co. is actively negotiating for a concession to build a road between Uralsk and Semipalatinsk. The Southwestern Railway Co. is again surveying the line between Millrovo and Saratov, more than 350 miles. The Moscow-Kasan Railway Co. proposes to construct a line connecting Aroamas, Silkrani, Kasan, and Ekaterinburg, about 600

miles, establishing a new short route between Moscow and Siberia via Tiumen. The Moscow-Windau-Rybinsk Railway Co., with a view to securing the freight business of some State lines, is endeavoring to obtain a concession for the construction of a road connecting

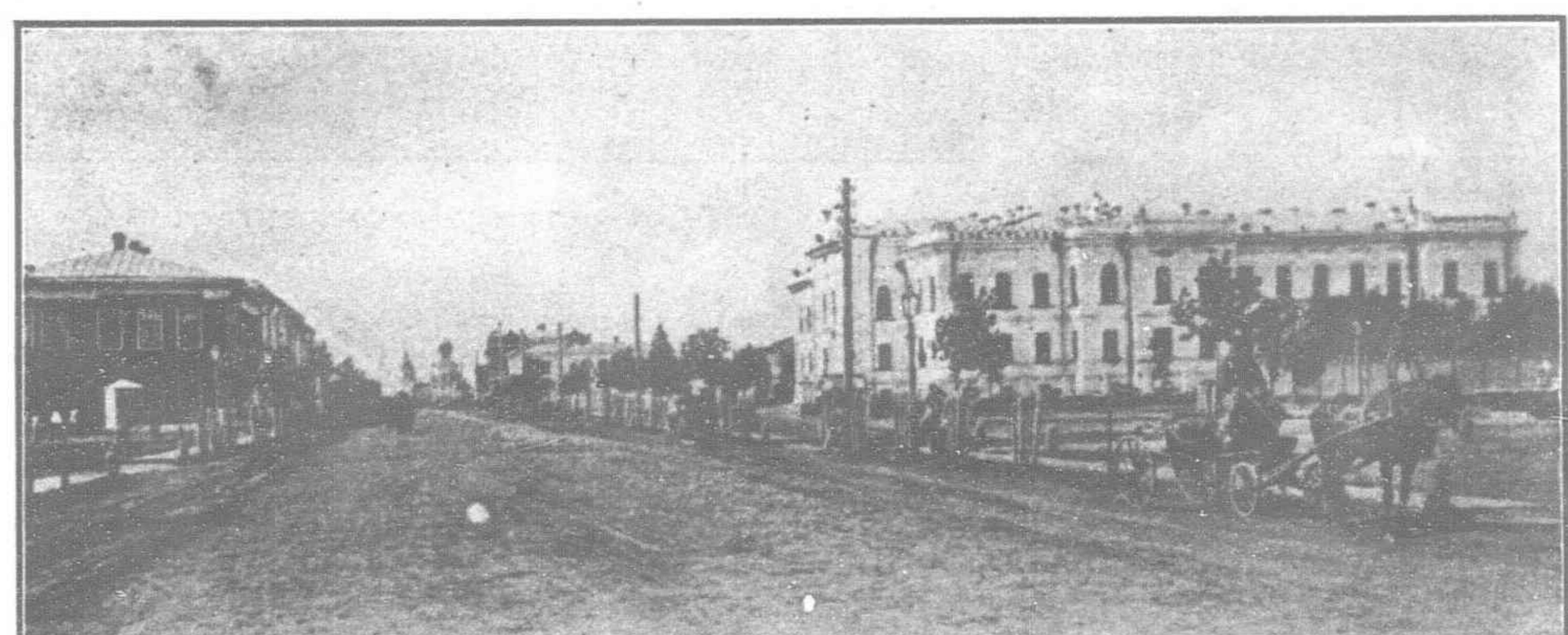
Rybinsk, Daniloy, Bui, Valdov, and Narva via Novgorod, a distance of 347 miles. The Vladikavkaz Railroad Co. is contemplating the building of a road about 670 miles long to do away with any competition in the northern Caucasus.



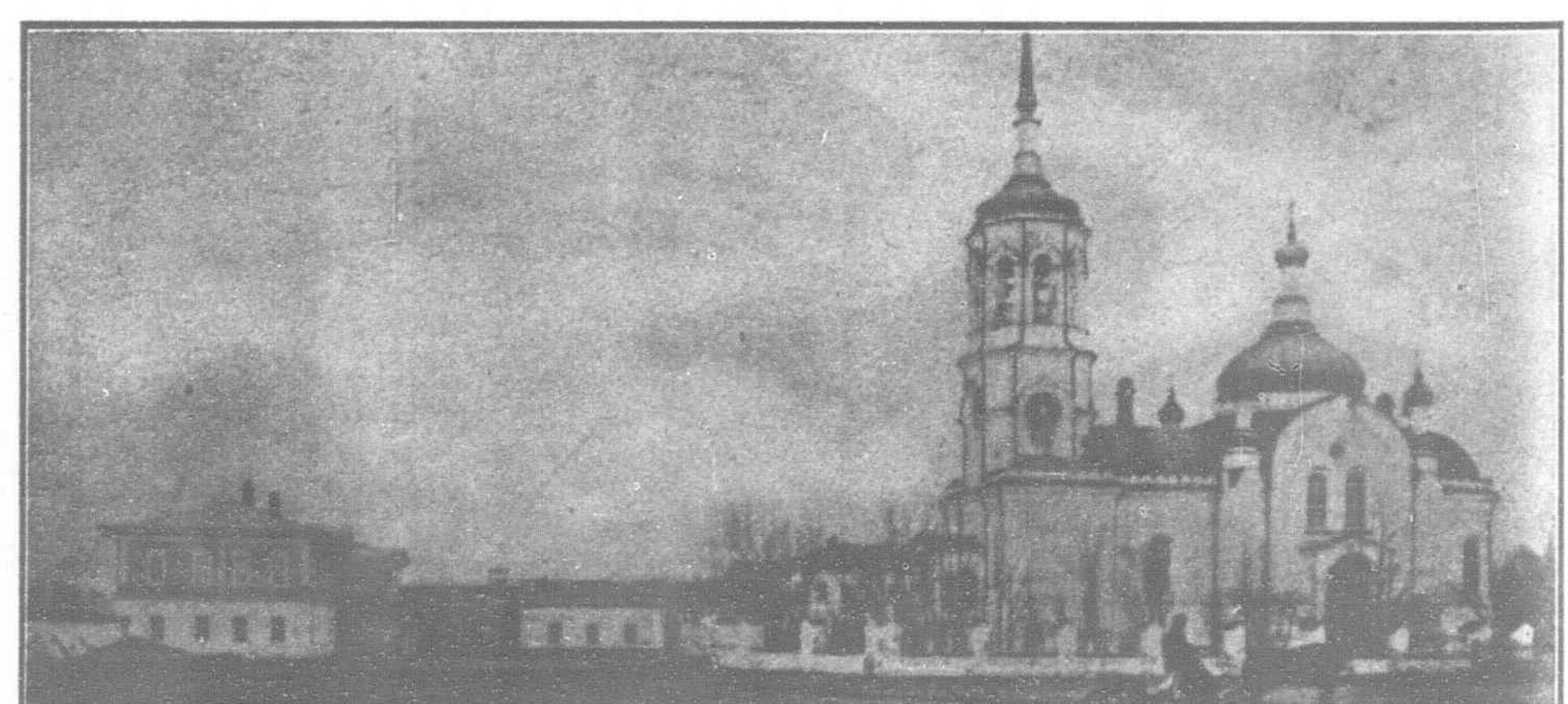
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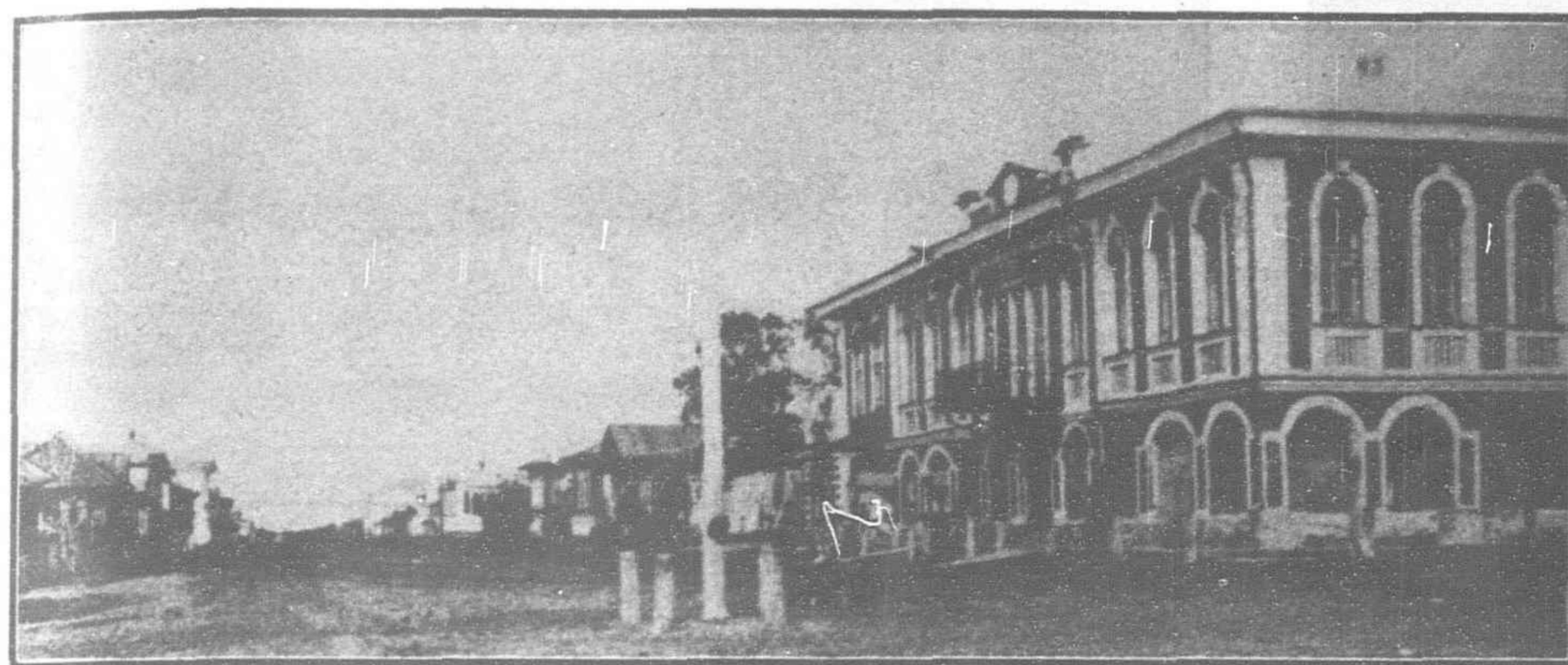
MORSCHANSK



TIUMEN



THE VARLIKOWSKAYA CHURCH AT TOMSK



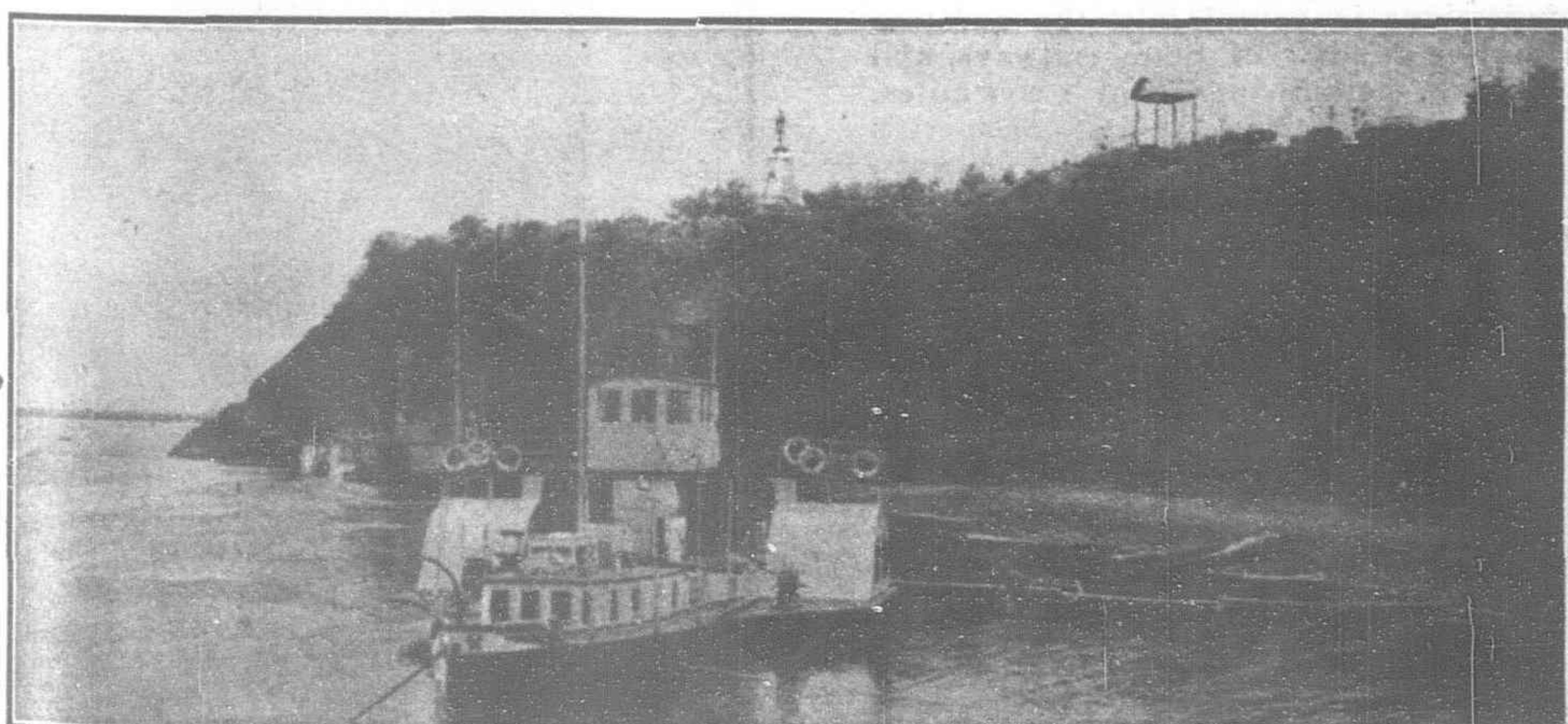
PETROPAVLOFSK



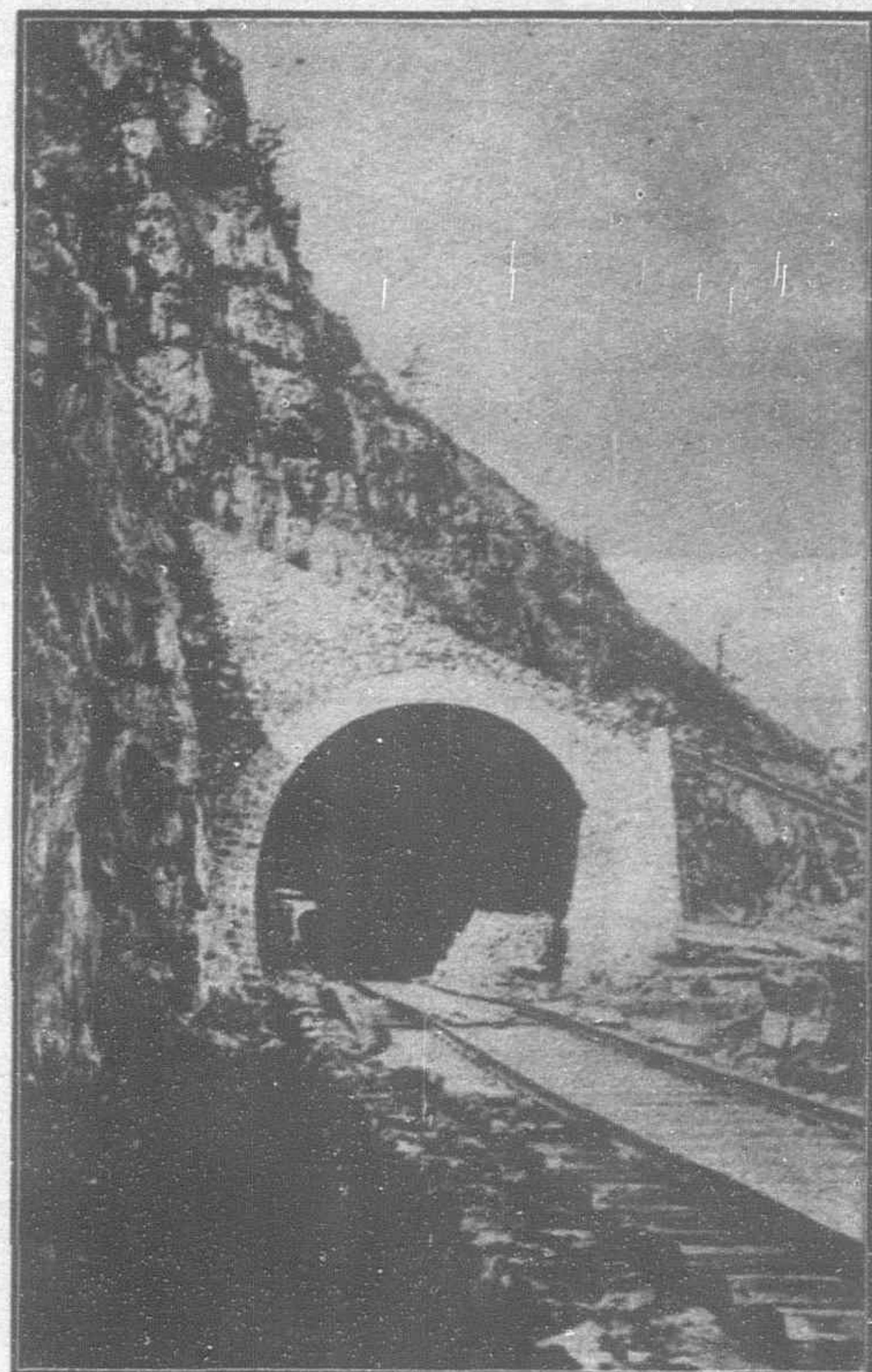
IRKOUTSK FROM THE ANGARA RIVER



TSCHITA: AMOURSKAYA STREET

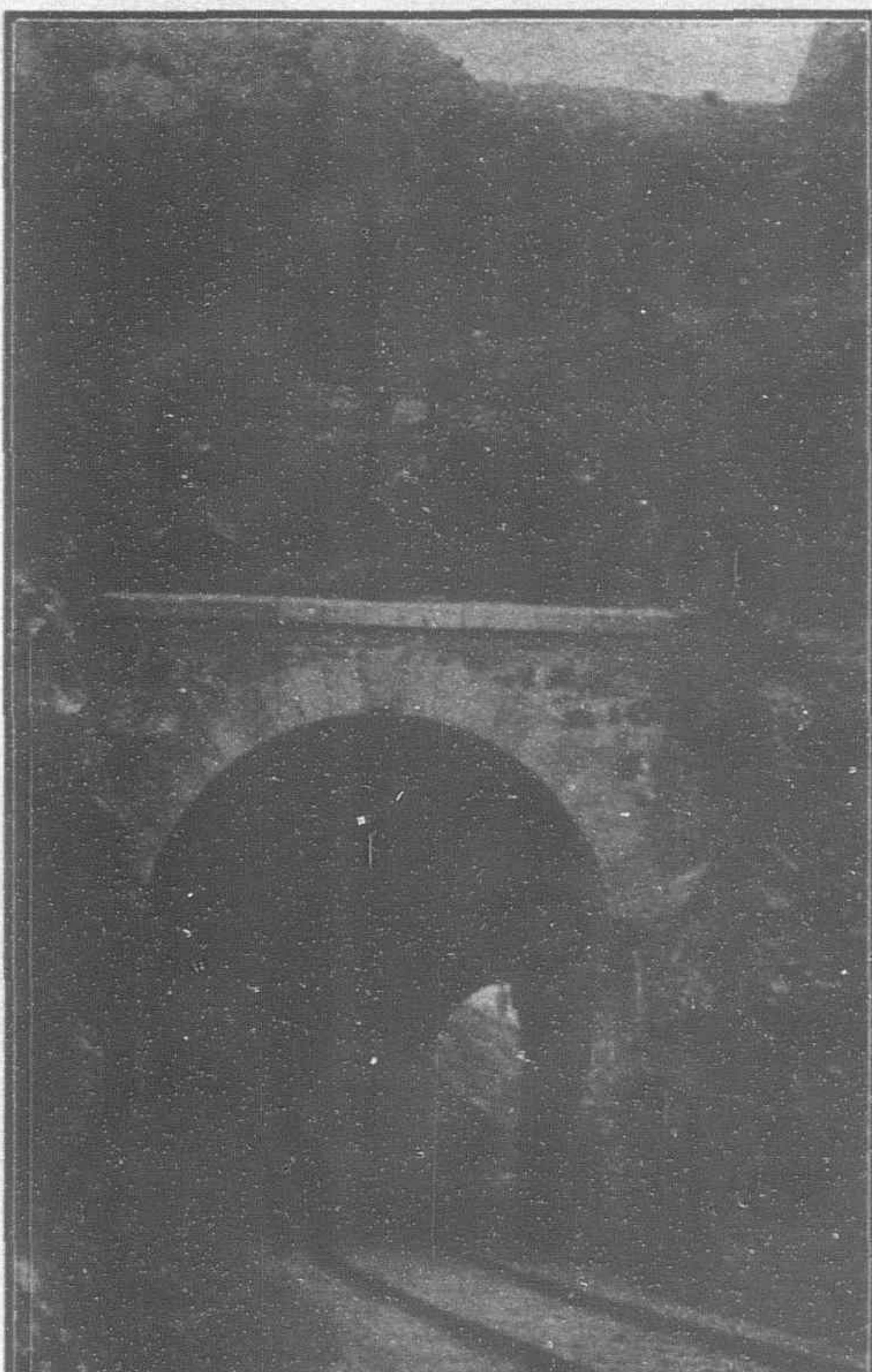


KHABAROVSK



A TUNNEL ON THE CIRCUMBAIKAL SECTION OF THE SIBERIAN RAILWAY

New Roads Proposed in Every Direction.—In addition to the existing undertakings of private railway companies, the organization of companies for building lines throughout undeveloped territory is a common occurrence. Some of the projects which are said to stand an early chance of realization are the proposed St. Petersburg-Nizhni Novgorod-Kniel, the Obdorsk, the Donetz-Dombrovok, and a complete net of lines in the Altais. Other schemes are the proposed construction of the Moscow-Reval, the White Runvan, the Kief-Baltic, the Petropavlovsk-Omsk, the Uktinsk, and



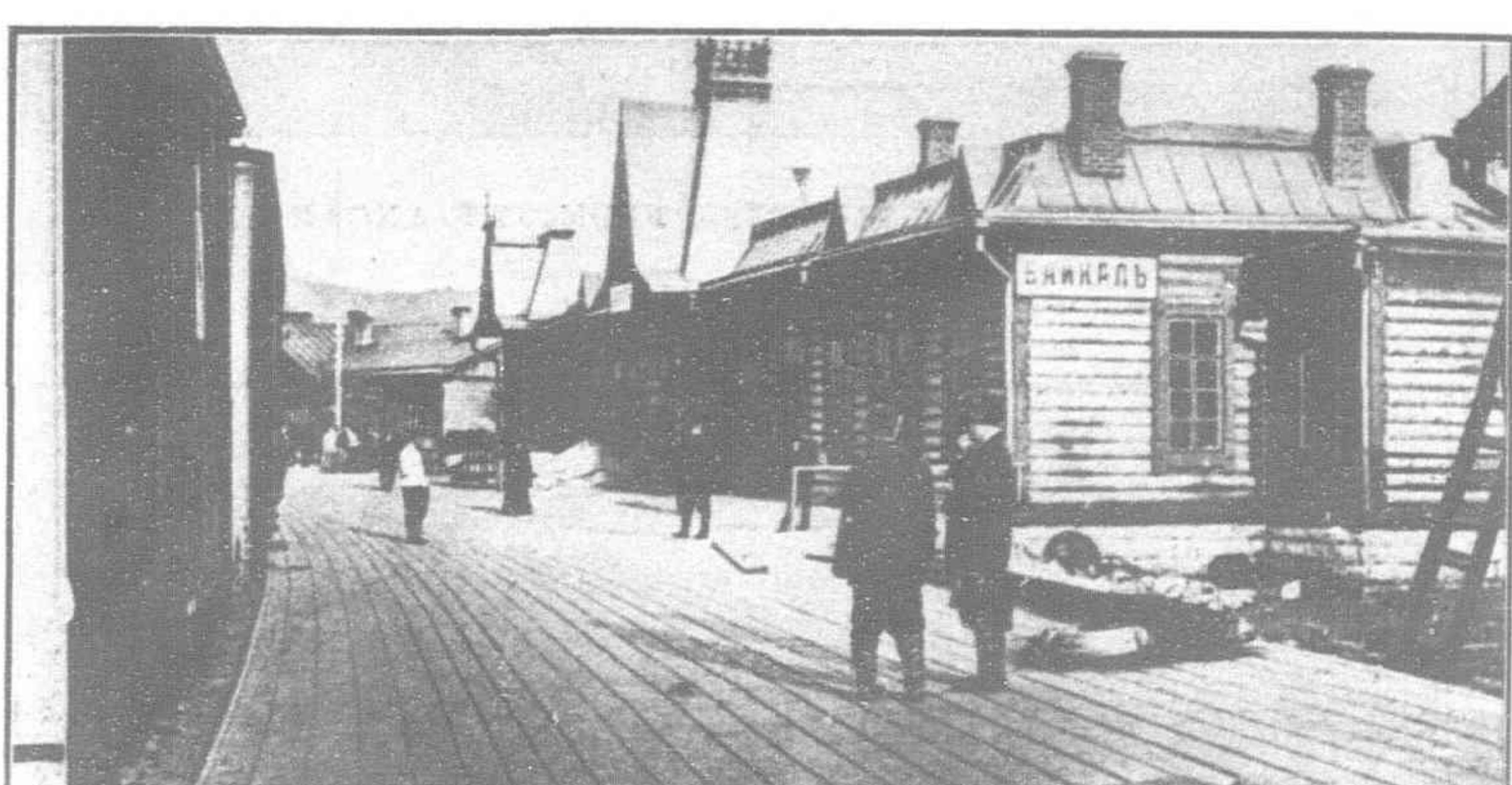
A TUNNEL ON THE CIRCUMBAIKAL SECTION OF THE SIBERIAN RAILWAY



RUSSIAN RAILWAY CONSTRUCTION



RUSSIAN RAILWAY CONSTRUCTION



TYPICAL STATIONS ON THE SIBERIAN RAILWAY

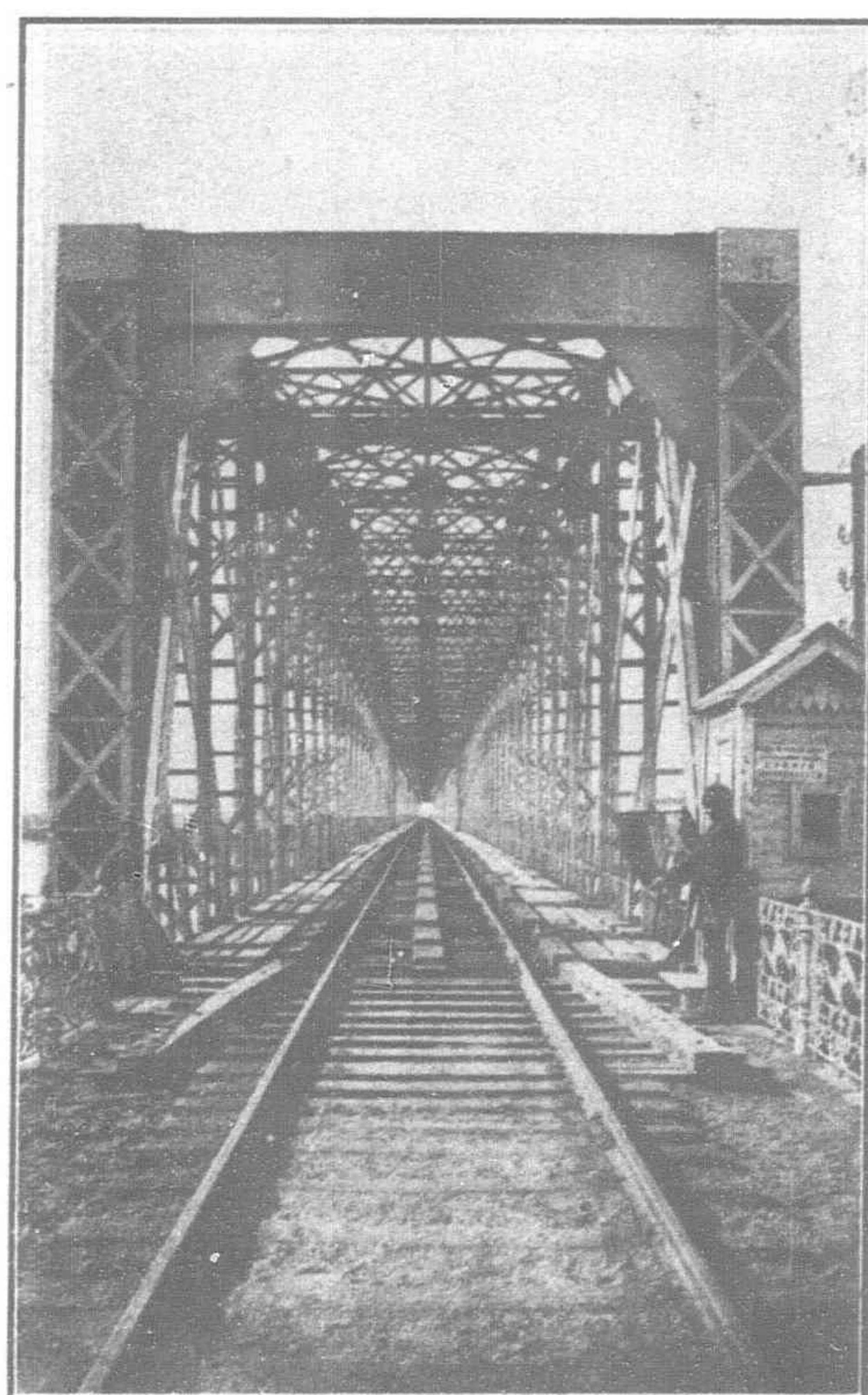
others. Even such proposed roads as appeared to have been abandoned, like the Tomas-zow, Kachetinsk, and Kiachta lines, are being considered, and talk of new concessions is heard.

While the Government will be burdened for the next few years in double-tracking the Trans-Siberian Railway and in constructing the Amur railroad, the Minister of Ways and Communications is considering the question of building a number of State railways, and the following, comprising about 1,200 miles, are, it is expected, to be the first considered: Nizhni Novgorod-Kotelnitch; a road between Arys and Verny; the Caucasian summit line between Vladikavkaz and Tiflis; and the strategical road, Borjom-Kars.

New Lines Proposed to the Duma.—The minister of railways has introduced a bill in the Duma providing for the approval of the program of railroad construction and preliminary surveys outlined by the Government for the near future, and for the appropriation of sufficient funds for the surveys of proposed new lines.

The minister states that the Government has decided to build the following roads (with mileage as indicated, aggregating 13,443 miles), as soon as the money for the same can be secured and the surveys completed:

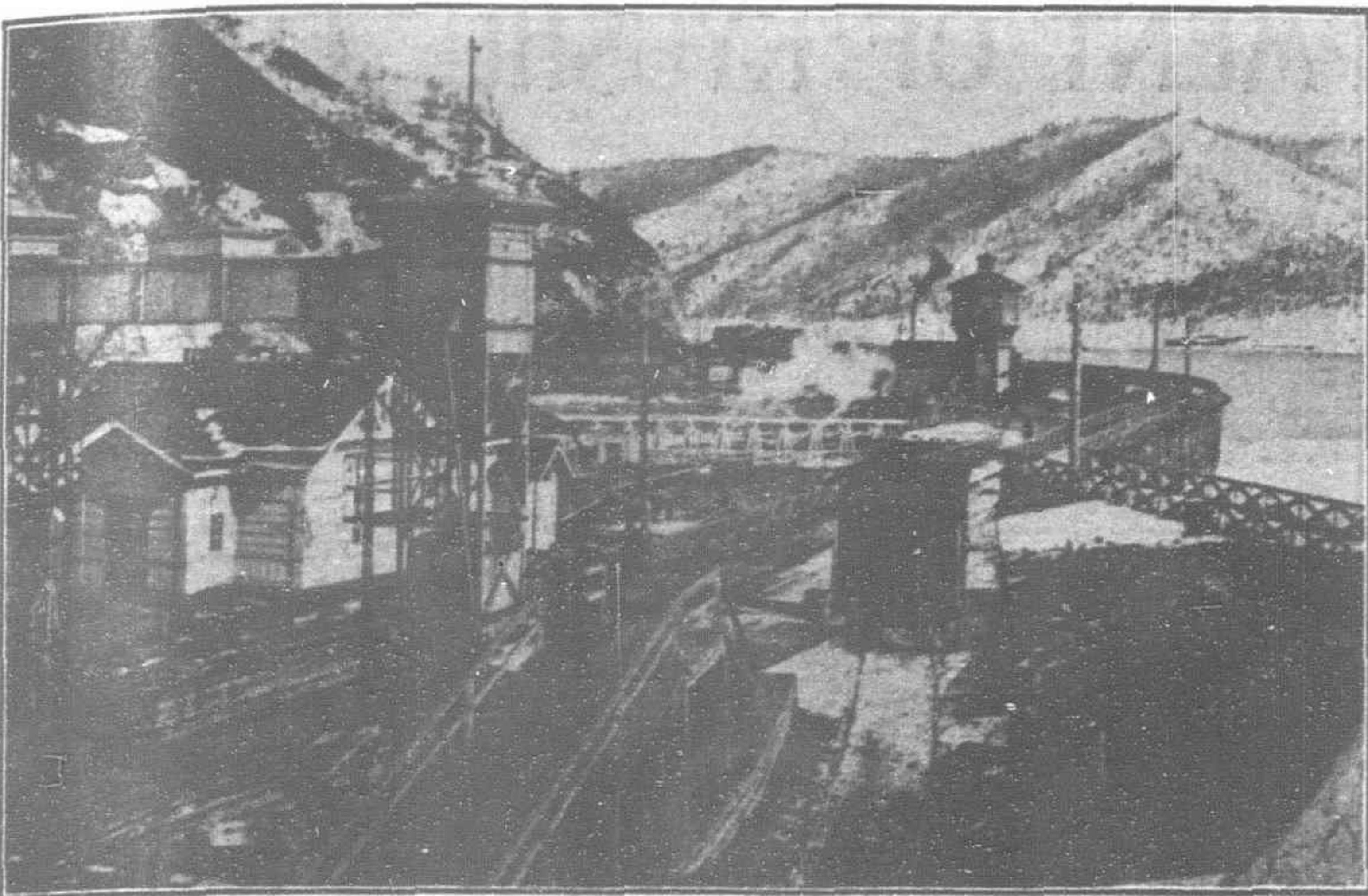
European Russia; eastern portion.—Yaroslav (left bank of the Volga)-Kostroma Varus-vin-Nolinsk, etc., with branches to Kineshma, 713; Ermilino-Nizhni Novgorod, 133; Nizhni



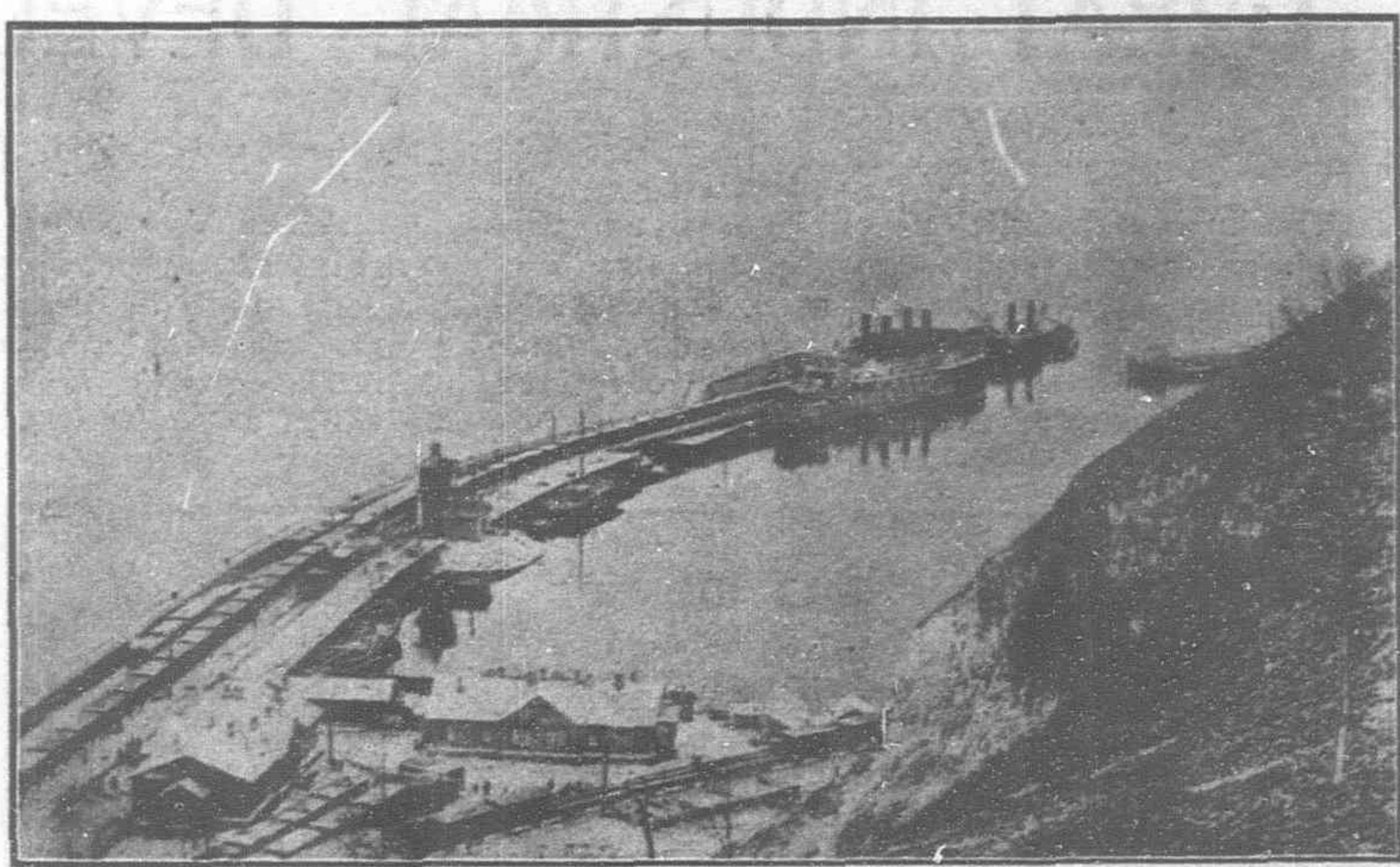
THE RAILWAY BRIDGE AT OUFA



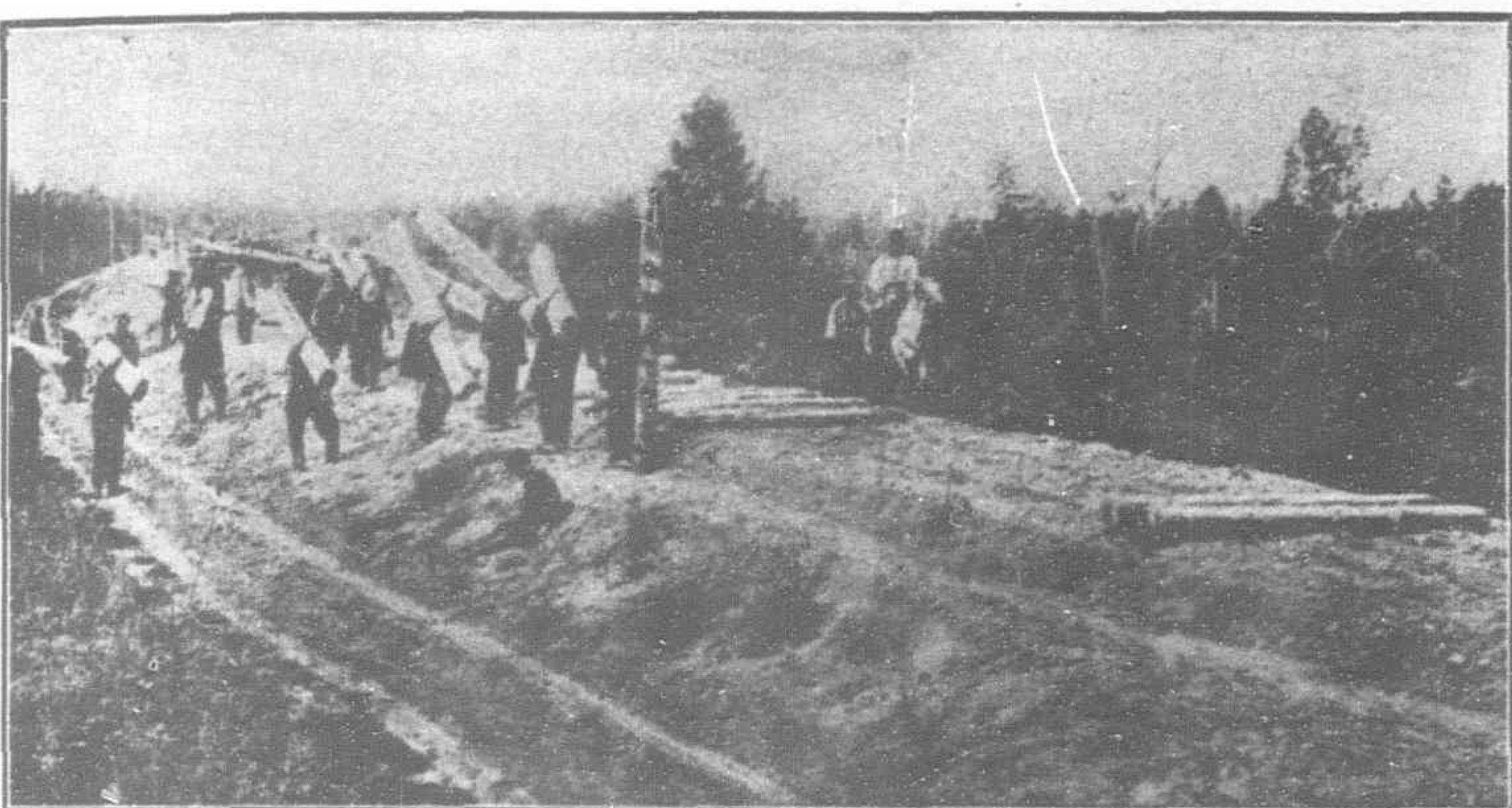
THE ALEXANDER II, BRIDGE OVER THE VOLGA



SIBERIAN RAILWAY: LAKE BAIKAL STATION



THE PIER AND FERRY SLIP AT BAIKAL



RUSSIAN RAILWAY CONSTRUCTION



Novgorod-Molinish, 293; *Molinish-Nolinsk-Viatka*, 213; *Nizhni Novgorod-Simbirsk*, 280; *Simbirsk-Kinel*, 80; *Mauserovo-Kasan-Oranburg-Orsk*, 700; *Kasan-Bozotoc*, 240; *Orenburg-Ufa*, 266; *Ufa-Kungur*, 280; *Orenburg-Orsk*, 240.

European Russia; southeastern portion.—*Koslov-Prokhladnaia*, 733; *Panavino-Povarino*, 233.

Central Russia.—*Orel-Plinso-Yeve*, 633; *Bielei-Narva*, 366; *Sudja-Suraj-Mohilev*, 323; *Mohilev-Postavi-Ponerej*, with branches, to *Dvinsk* (*Dunabury*), 333; *Kaluga-Baranowitschi*, 466.

Southwestern Russia.—*Nikolo-Koselsk-Uman*, 193; *Jmerinka-Dubno*, 200; *Bar-Kamenetz* 80; *Fastov-Rovno*, 180; *Kamenetz-Ostrogetz-Kielce*, 280; *Odessa-Akerman-Leibzigskaia*, with a branch to *Jebriom*, 173; *Lida-Orony-Linev*, 86; *Kharkof-Ekaterinoslav-Kherson*, 313; *Apostolovo-Kherson*, unknown; *Kertch-Novorossysk*, 106; *Bink-Oular-Saki*, 73.

Northern Russia.—*Svanka-Witegra-Miadoina*, 340; with branch to *Petrogovodsk*, 113.

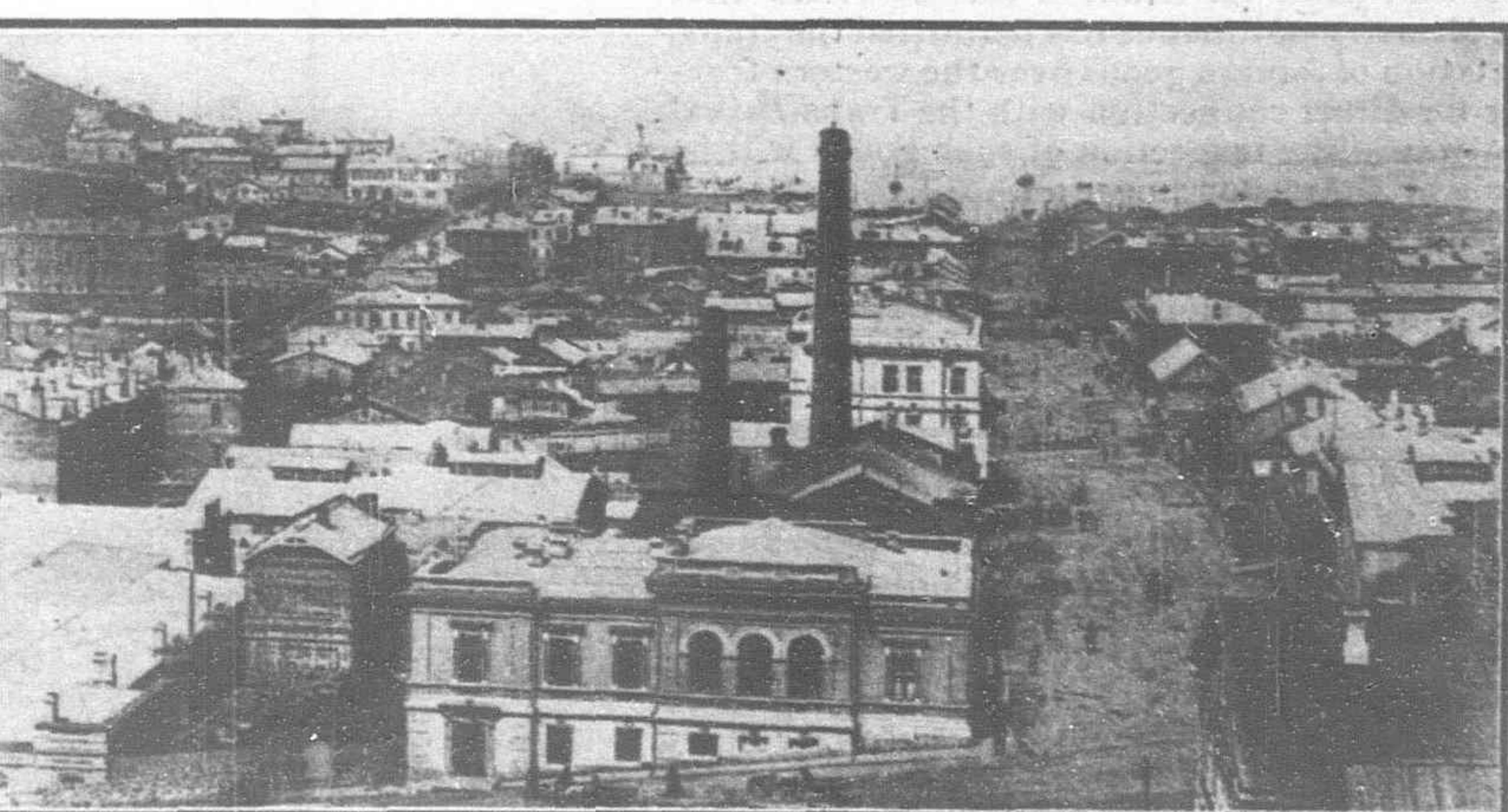
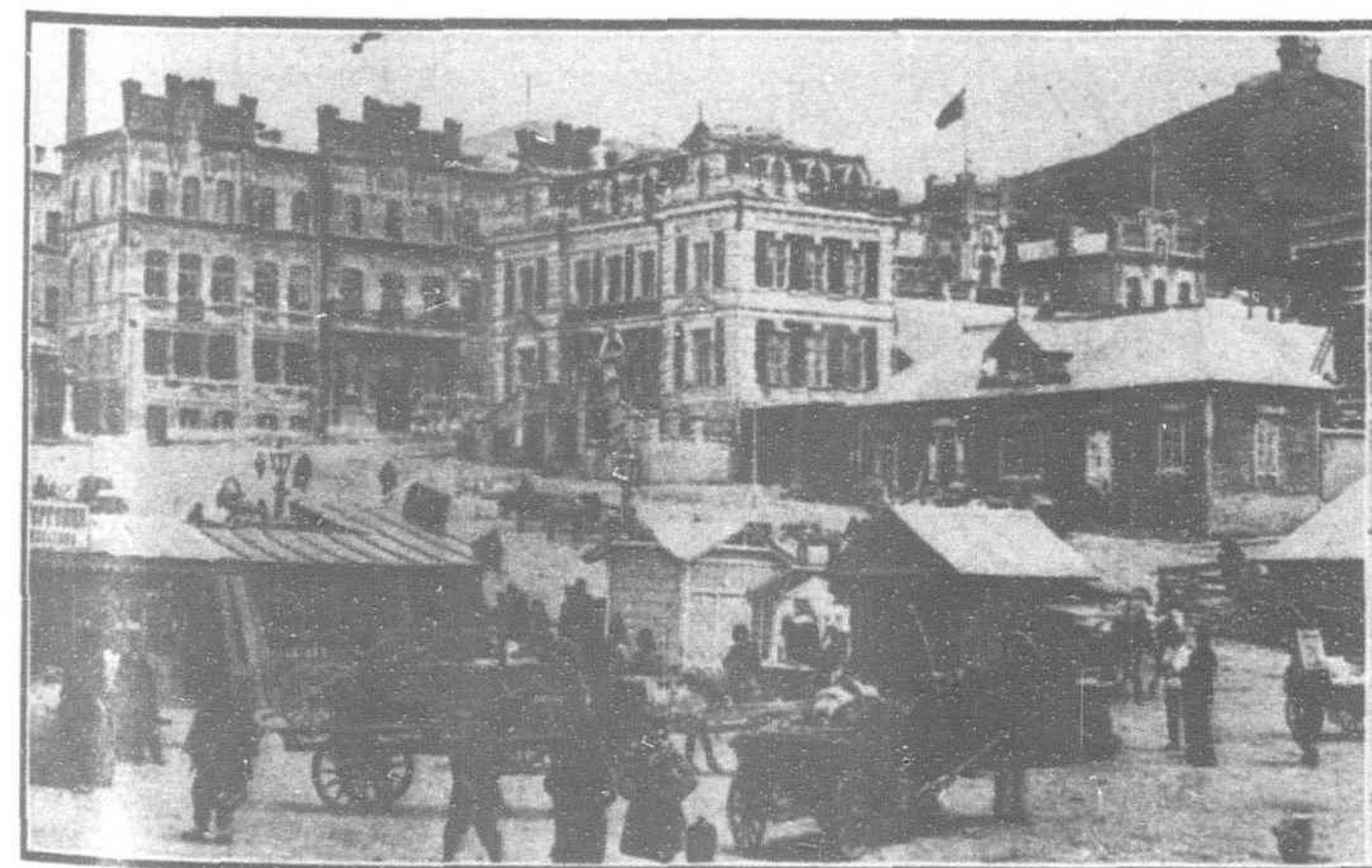
The Caucasus.—*Sagiri-Astara*, 153; *Zakatoli-Evlakh*, 133; *Novaghi-Shemakha*, 73.

Asiatic Russia.—*Petropavlovsk-Akmolinsk*, 885; *Spassk-Spaskiyozod*, 440; *Spaskiyozod-Station "Mondibay"*, 586; *Kokchetav-Kurgon*, 260; *Orsk-Troitsk*, 280; *Barwani-Urga*, 320; branch to *Kuznetsk*, 106; *Minusinsk-Otchinsk*, 266; branch to *Binsk*, 133; *Minusinsk-Krasniwiarsk*, 300; *Birsk-Kuztesk-Minusinsk*, 380; connection of the Lena River with the Siberian Railway at *Ust-Kutsk Station*, 466.

Railway Equipment—Traffic.—Latest statistics show that the State railways own and operate 14,863 engines, consisting of 2,375 passenger, 12,193 freight, and 295 switching; while private railways own 716 passenger, 3,381 freight, and 146 switching engines. The passenger cars belonging to the State number 14,907 and those owned by private railways 4,524. The total number of mail cars is 695,

the Government owning 477 and private companies 218. The State owns 143 auxiliary passenger cars and private railways 201; while 320, 192 freight cars belong to the Government and 109,245 to private railways, including cars owned by private individuals. The total carrying capacity of the freight cars belonging to the Government is 4,178,334 tons and that of those owned by private railways 1,413,570 tons. The Government owns 2,289 auxiliary freight cars and private railroads 1,247.

State railways carried, in 1907, 109,304,000 passengers and private railways 38,566,000 passengers. During the same year 144,832,790 tons of freight were carried on State railways and 55,310,709 tons on private railways. There were 6,410 accidents on the railways in 1907, in which 992 persons were killed and 4,740 injured. There were also 56 persons killed and 6,866 injured in handling traffic, tools, machinery, supplies, etc., and in getting on or off locomotives or cars at rest, and from other causes.



VIEWS OF VLADIVOSTOK

GREAT INDUSTRIAL DEVELOPMENT OF KYUSHU, JAPAN

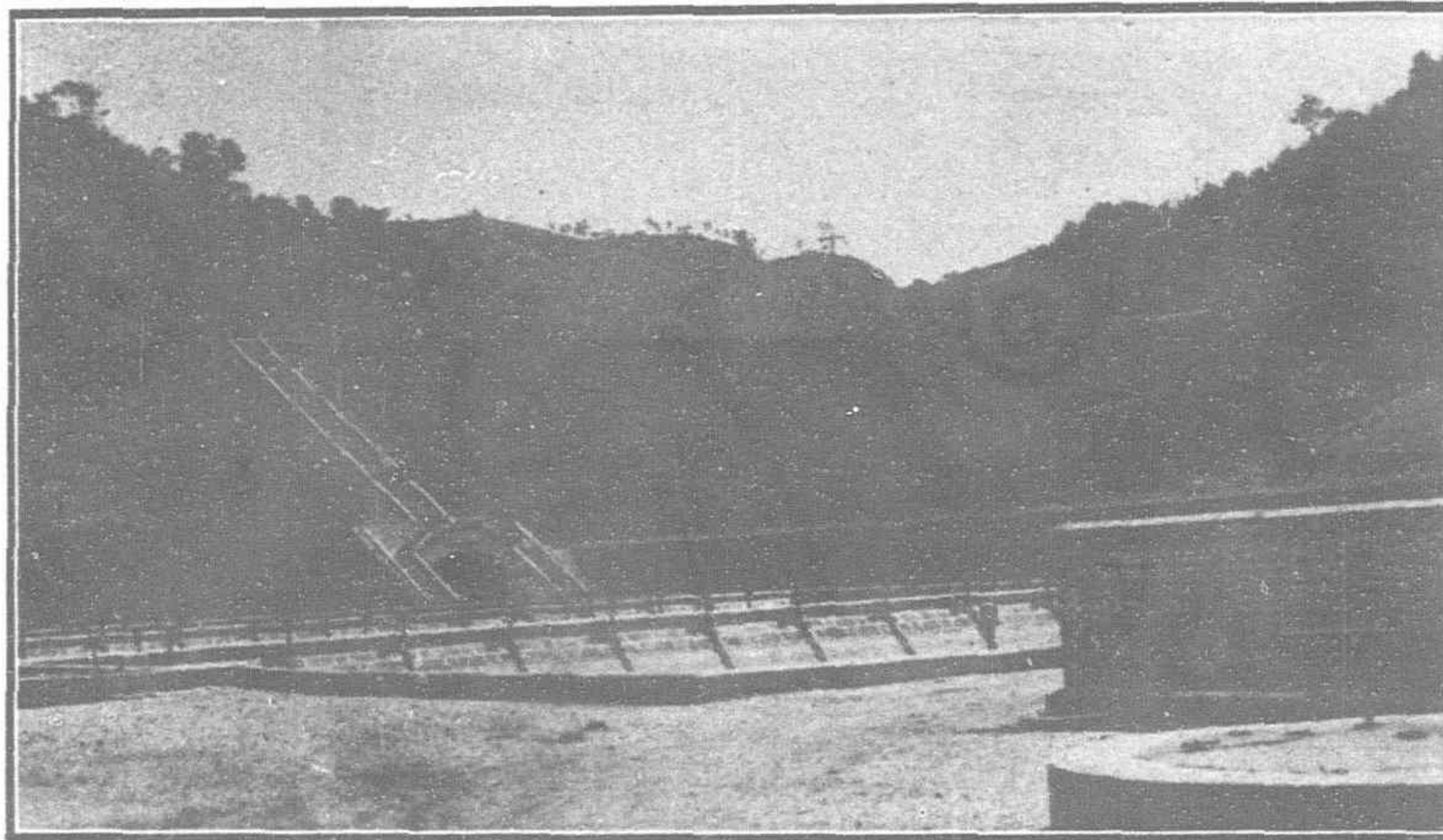
[By CONSUL CARL F. DEICHMAN NAGASAKI]

The business conditions of Nagasaki and this consular district show considerable improvement since the beginning of 1911, and all indications point to a fairly prosperous year. Many public improvement works have been completed and others inaugurated, and a generally opti-

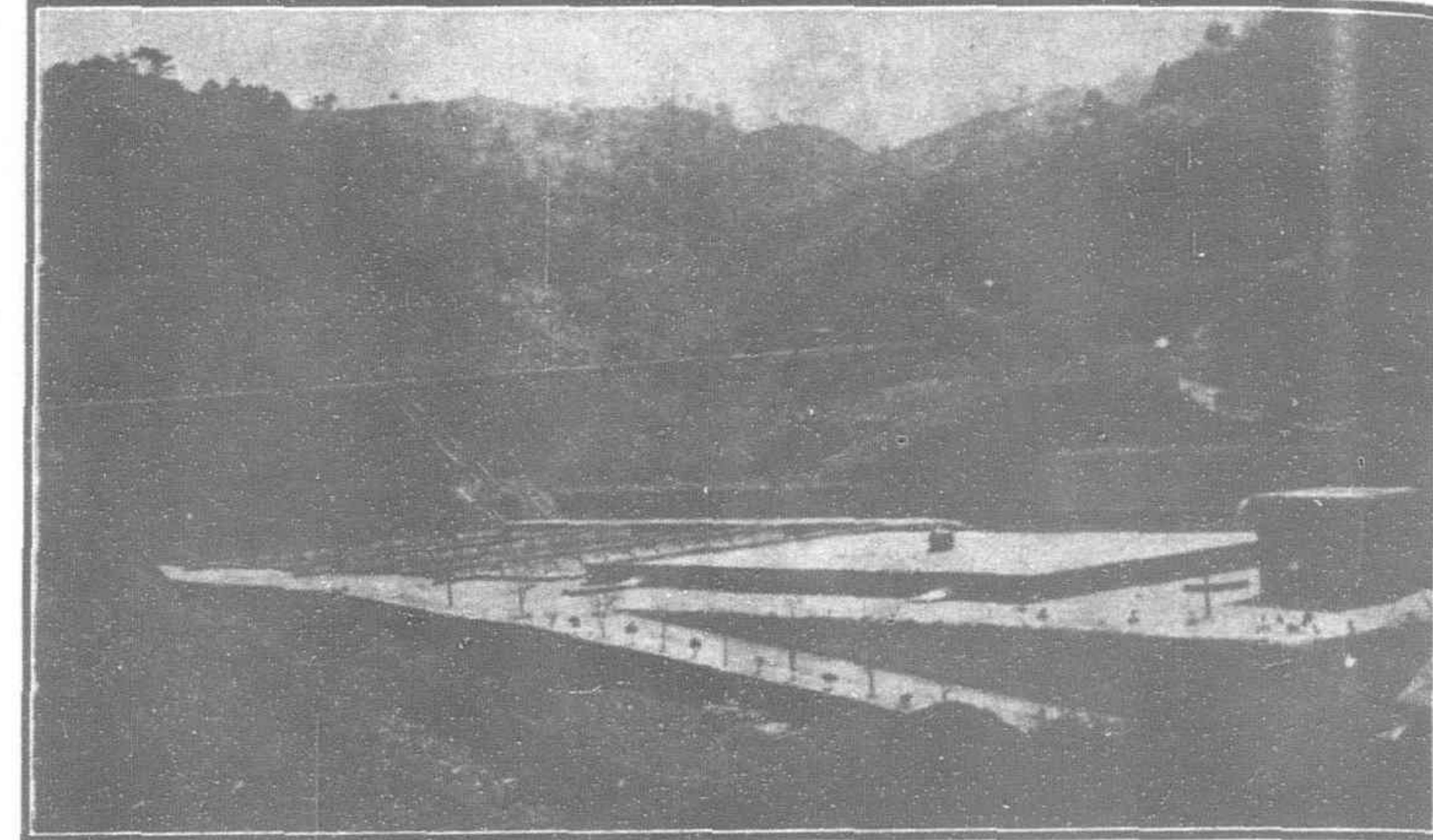
Many New Ships Under Construction.—The shipbuilding industry of Nagasaki has improved very much in the past year. The Mitsu Bishi Dockyard & Engine Works, in addition to a large amount of docking and general repair work, has built and turned over to their owners

pedoboot destroyer *Yamakaze*, 1,050 tons, 33 knots speed for the Japanese Government.

The vessels now building or contracted for by the Mitsu Bishi dockyard are a second-class cruiser of 5,000 tons for the Japanese Government, a small gunboat of 1,000



NAGASAKI WATERWORKS



NAGASAKI WATERWORKS

mistic feeling regarding the future seems to pervade the business community.

The severe storms and floods in the eastern part of Japan in the last 12 months, causing so much damage to the farming section there, especially the rice fields, have redounded to the advantage of the agricultural sections of this consular district, where an exceptionally good crop was harvested last year, and its benefits were felt by the business community generally.

Development of Steam Trawling.—The fishing interests have also been very successful, especially the steam trawling companies, whose business has increased by leaps and bounds, so much so in fact that the Government has withdrawn from April 1, 1911, the subsidies which were formerly paid the trawlers to encourage this branch of fishing, and made new regulations applying to them and requiring all steam trawlers to be of 180 tons or more register. Two steam trawlers were recently launched by the local shipyard and turned over to their owners, Hashimoto & Co. and S. Sawayama & Co., both Nagasaki companies.

Owing to the success of the steam trawlers many new companies are projected, and in some of the outlying islands the fishermen are organizing local companies. A new steam trawling company has just been organized in Iki, one of the small islands of Nagasaki Prefecture lying off the northwest coast between here and the Shimonoseki Straits.

Consul John H. Grant of Odessa writes that the Ministry of Finance has permitted the transportation of foreign goods over the western frontier for direct connection with the Trans-Baikal Railway. The inspection of such goods will be made by the customhouse authorities at the city of Irkutsk (Siberia).

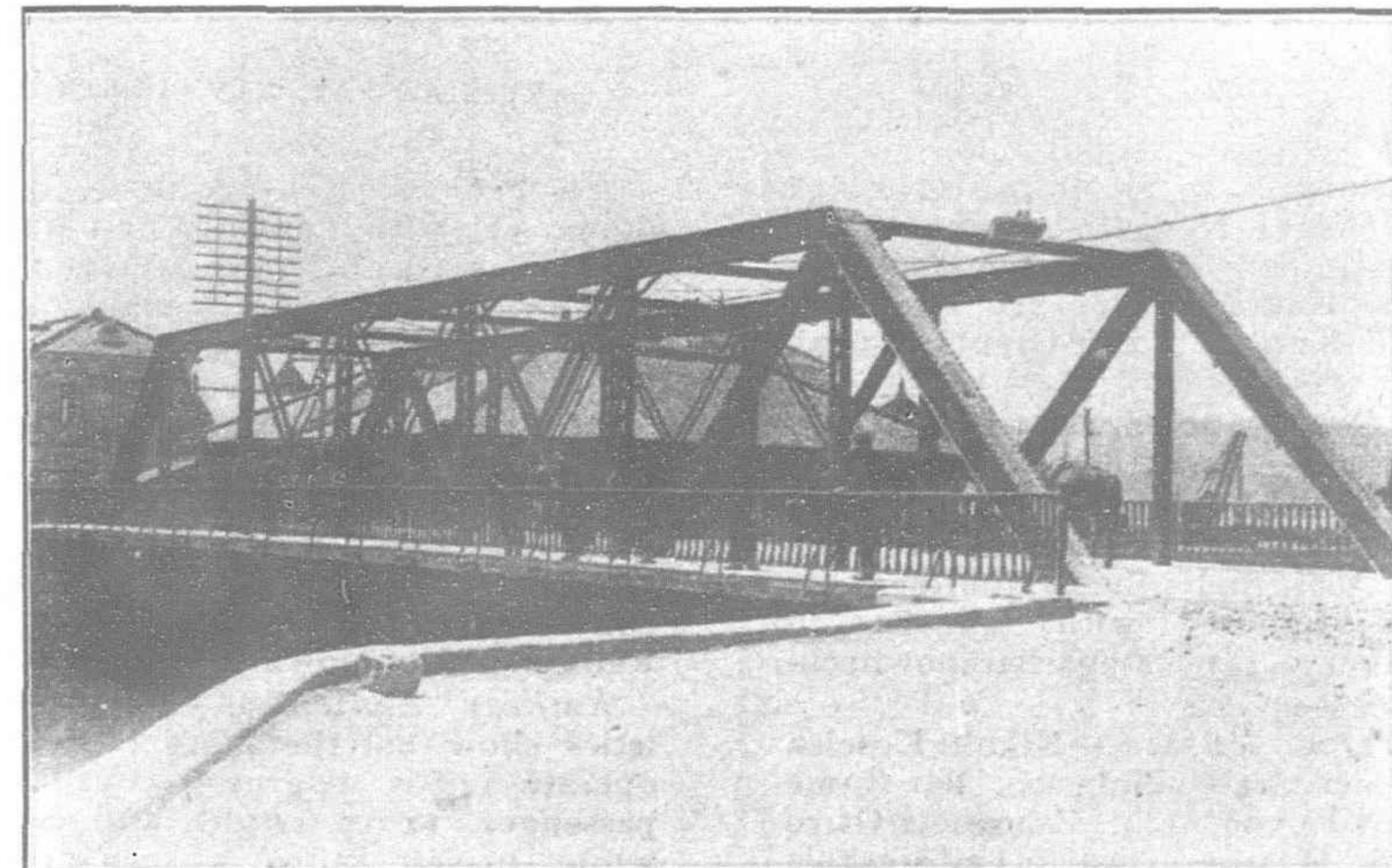
The success of direct transportation of goods between Warsaw and Siberia, which has reduced the time in covering the 3,000 miles from 24 days to 8 days, has induced the board of the Vistula Railroad Co. to introduce more rapid railroad communication between Moscow and Odessa.

To meet the requirements of Government railroads in 1912 the Ministry of Ways and Communication intends to order 51 passenger locomotives, 42 first-class cars, 73 mixed first and second class cars 147 second-class cars, 523 third-class cars, 468 fourth-class cars, and 63 baggage vans and other rolling stock.

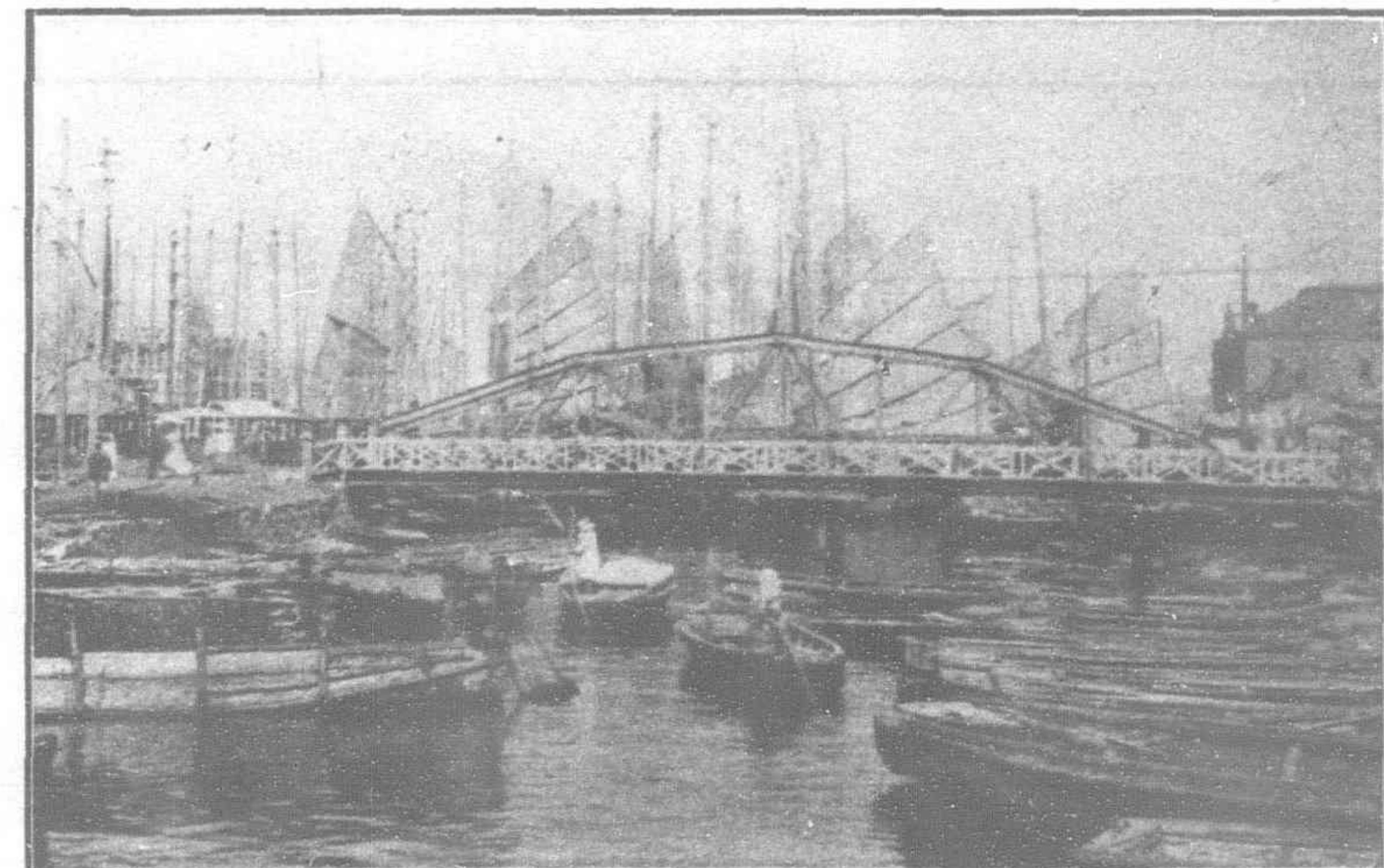
The regular general meeting of representatives of all Russian railroads was held from October 31 to November 13, 1911.

since January 1 the *Canada-Maru*, 6,000 tons, 14 knots speed, for the Osaka Shosen Kaisha, to be placed on its Seattle line; the *Shinyo-Maru*, 21,650 tons, 20 knots speed for the Toyo Kisen Kaisha, for its San Francisco line; and the tor-

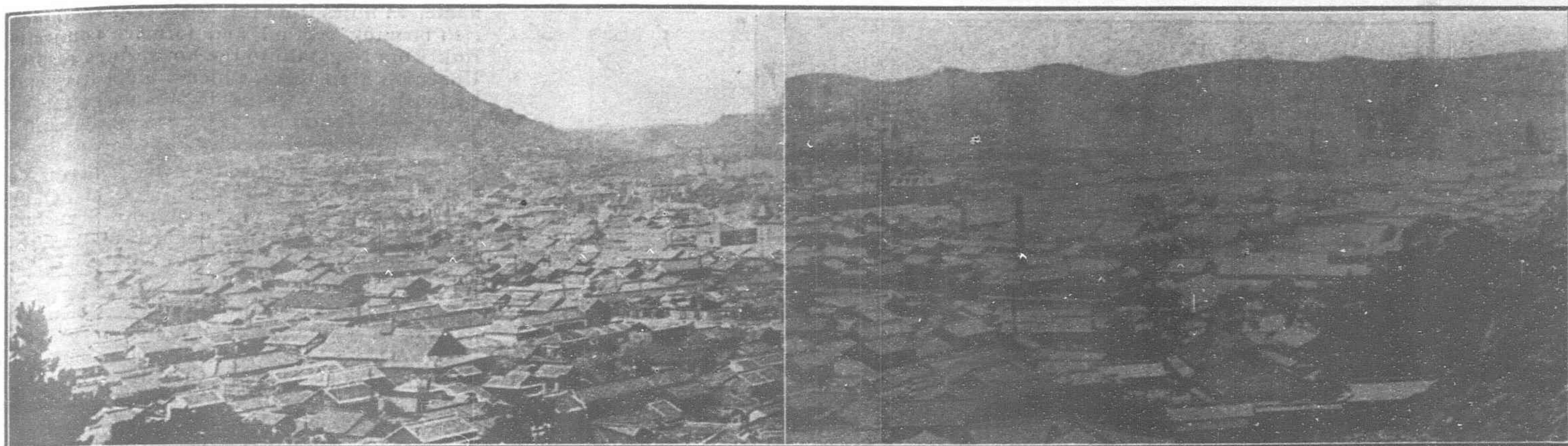
tons for the Chinese Government, a cargo steamer of 9,100 tons for the Toyo Kisen Kaisha, a cargo steamer of 6,000 tons for the Nippon Yusen Kaisha, and some fishing boats. A contract is also expected for a



OURADESHI BRIDGE IN NAGASAKI



THE BUND AT MOJI



GENERAL VIEW OF MOJI, KYUSHI

steamer of 8,000 tons for the Toyo Kisen Kaisha South American line. These steamers are all to be completed during 1912. Also 276 freight cars are now being built for the Imperial Government Railways.

Warship Orders—New Docks and Machine Shops.—A contract has been entered into with the Government to build an armored cruiser of 27,000 tons to cost about \$6,500,000, to be completed in 1914. The steel for this cruiser is to come from England and Germany and the armament from the arsenal at Kure, Japan.

In order that the needs for this warship may be met and to accommodate the largest warships afloat, No. 3 Dock is to be enlarged and widened, the length to be about 800 feet and the width 115 feet. The present dimensions of the dock are 714 feet on keel blocks, 88 feet wide on bottom at entrance, and 14 feet depth of water on the keel blocks. Permission has been granted by the Government to the dock company to reclaim 13,083 tsubo (470,988 square feet) of land from the bay in front of its yards to extend the shipyard and put up additional machine shops.

The Mitsu Bishi Dockyard and Engine Works have also secured a site for a dockyard in the Shimonoseki Straits at Yenoura, Hikoshima-Mura, in Yamaguchi Prefecture. It is planned to put in a dock 350 feet long and 60 feet wide to accommodate vessels up to 3,500 tons.

At the Government navy yard at Saseho, about 16 miles from Nagasaki, extensive improvements and additions are in course of construction. A new dry dock 777 feet long, 111 feet wide, and 38 feet deep is now building and will be the largest in the Orient. The cruiser *Chikuma*, a second-class cruiser of 5,000 tons, 26 knots speed, with turbine engines, was launched at this yard on April 1, 1911, it being the first of the larger type of vessels to be launched here.

New Government Railways.—The Imperial Railway Board has opened to the public sev-

eral new sections of railway in northeastern Kyushu. The section from Hiji to Beppu of the Oita line was opened to traffic on July 16, making connection at Kokura with the main line at Moji on the north and to Nagasaki and Kagoshima on the south. Beppu is a hot-springs resort on the northeast coast of the island of Kyushu and is famous for its hot mud baths, which possess many curative properties and is much frequented by Japanese people from all parts of Japan. With the advent of the railroad the journey, formerly a trying ordeal, is now quick and convenient and will no doubt make the Beppu resort more popular than ever. The railway is being extended from Beppu to Oita, the seaport—seat of prefectoral government and most important town on the northeast coast of Kyushu.

On the southeast coast of Kyushu a 48-mile branch line of the Imperial Railways is being built from the port of Miyazaki to the town of Yoshimatsu, on the main line. A 32-mile line is also being constructed from Kagoshima, a port in the southern part of Kyushu and the present terminus of the main line, to Sendai, a town on the southwest coast.

Two new steamers of 3,000 tons each are to be constructed by the Imperial Railways to connect the lines of Kyushu and of Hondo at Moji and Shimonoseki with the Korean Railways at the port of Fusan, Korea.

Suspension Bridge for Shimonoseki Straits.—The Railway Bureau has been investigating various plans for the bridging of the Straits of Shimonoseki to connect the railway systems of Kyushu and the main island, Hondo, and is now considering the plans for a suspension bridge across the channel between the old town of Moji and Dannoura, where the width is only 1,000 yards. A suspension bridge is thought to best overcome the objections of the military authorities and the shipping interests. The bridge supports on each side are to be 250 feet high and the cost of the undertaking is estimated at \$7,500,000.

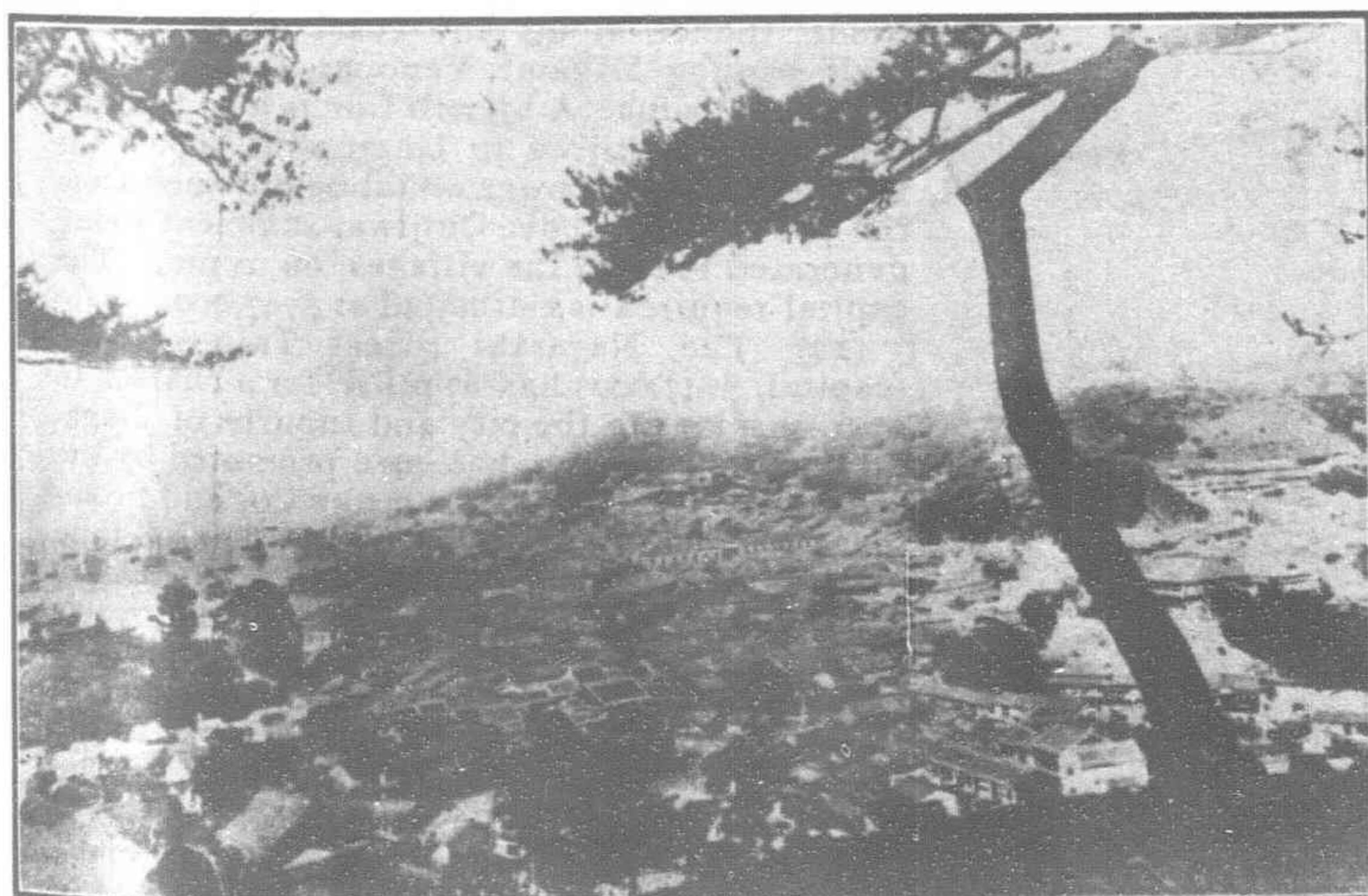
The improvement of the navigable channel in the Straits of Shimonoseki is progressing favorably, the work being carried on under a continuing appropriation over a period of 10 years of \$6,500,000, and is to include some harbor improvements at Moji and Shimonoseki.

Private Light Steam Railways, Electric Tramways, etc.—The island of Kyushu is experiencing a "boom" in light railway construction by private corporations, principally electric roads, and companies are being projected everywhere in the island where such lines are possible. While some of the companies are no doubt unstable, there are many promising projects among them, and those which have been constructed are paying good dividends (with the aid of subsidies in some cases). The fine showing made by these companies, together with the improved business conditions and easier money market, also the need for transportation facilities in some sections, has started the "boom" in these undertakings.

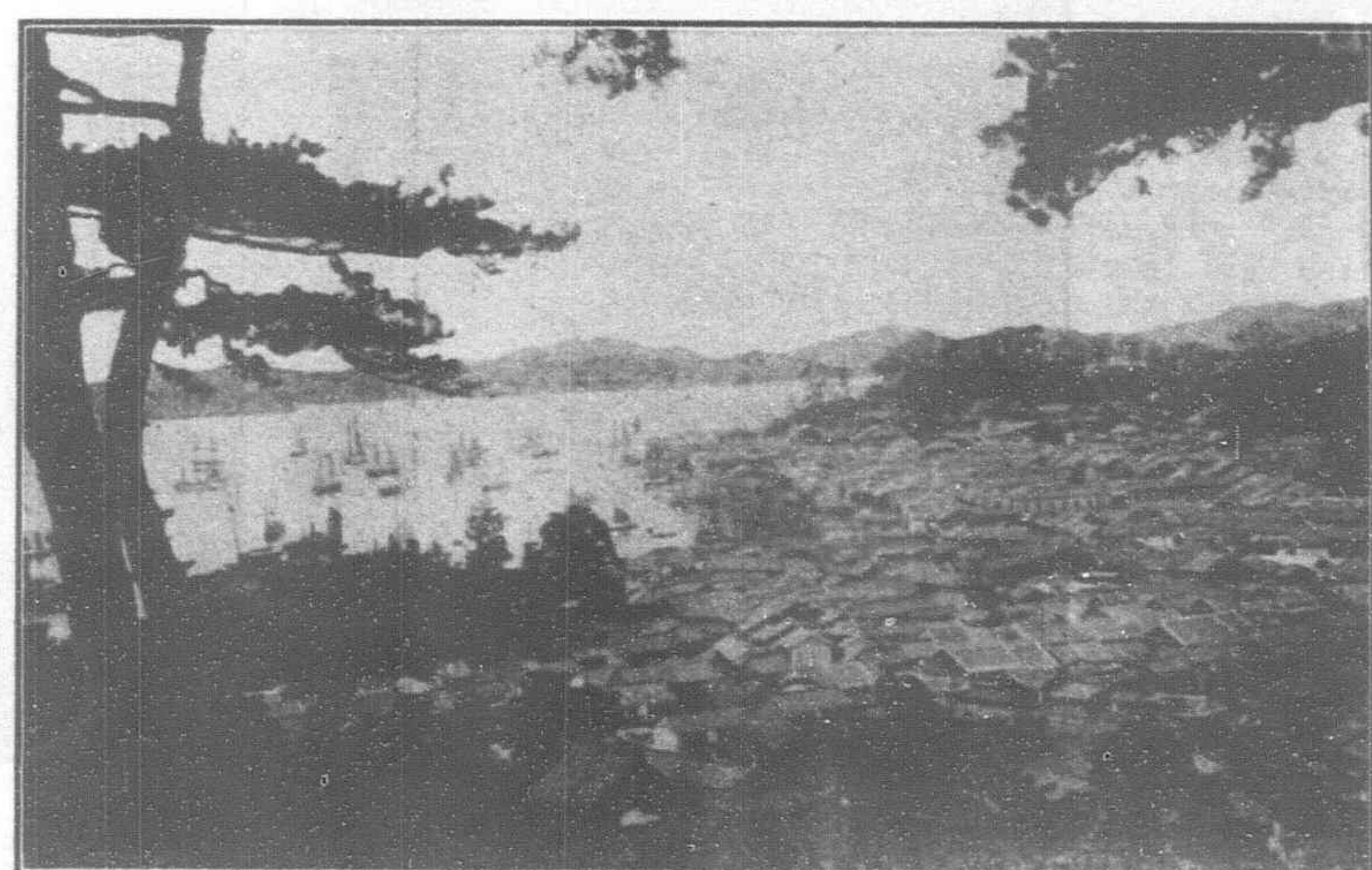
While many of the roads, if built, may not prove profitable to those who have invested their savings in them, they will be of undoubted benefit in the development of the country traversed, and viewed in the latter light they are a good thing for the island.

Kyushu is especially favored with regard to electric light and power projects, having an abundance of coal in almost all parts of the island, and in addition many mountain streams capable of being used for power purposes, and many hydroelectric plants have been established and are in successful operation, as well as many electric tramways. As a consequence, electric light and power projects are as numerous as the streams in the country, and this enthusiasm for things electric is fostered and encouraged by the large engineering companies of Osaka and Tokyo, who usually assist in promoting the companies and also reap the first benefits.

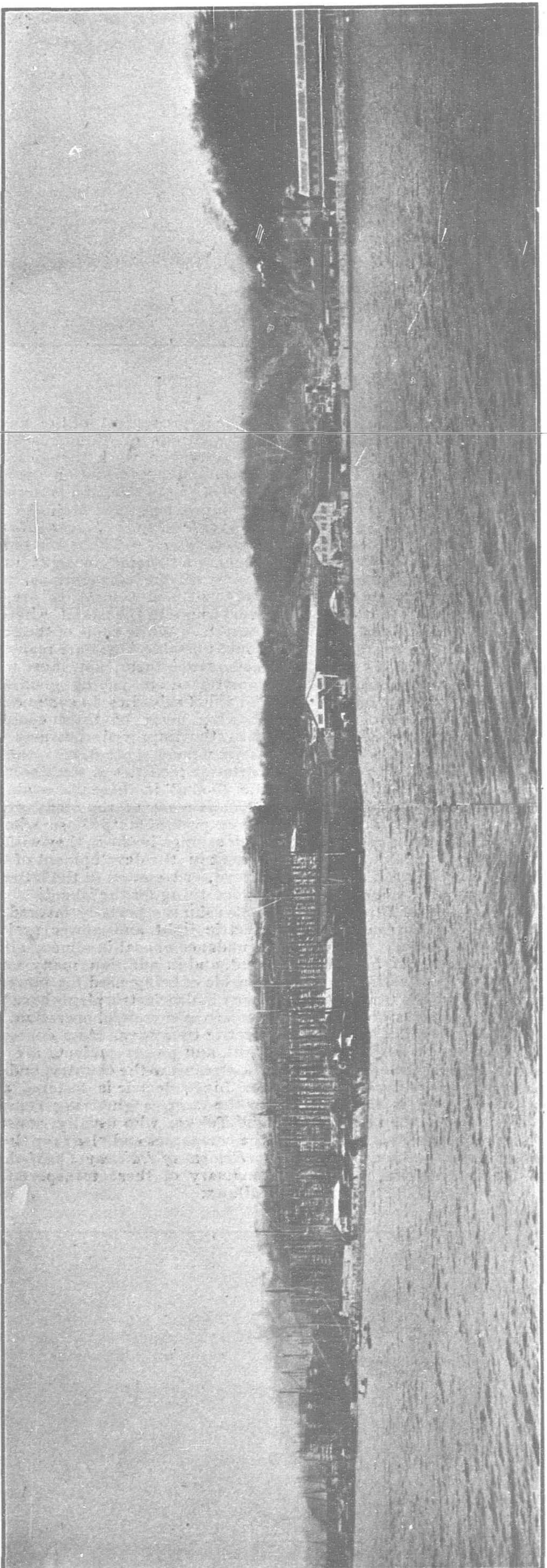
Review of Railway Construction Work.—A summary of these transportation enterprises follows:



SHIMONOSEKI



SHIMONOSEKI



MITSU BISHI DOCKYARD AND ENGINE WORKS: PANORAMIC VIEW OF THE YATAGANIC SHIPYARDS AND VICINITY AT NAGASAKI

(1) Of the two light railways recently constructed, the Shimbara Railway opened to traffic the first section, 7 miles, from Isahaya to Aitsu, on June 18, 1911. It is a narrow-gauge light

steam railway beginning at Isahaya, a station on the main line of the Government railway about 20 miles from Nagasaki and running to Shimbara, a town on the peninsula of the same

name, 22 miles from Isahaya. The road taps a rich farming section and forms a connecting link from Nagasaki to the hot springs resort of Unzen on Shimabar, which is much frequented by tourists from China in summer. The cost of the first section was \$23,774 per mile, with an annual prefectoral subsidy of \$5,000.

(2) The new electric tramway between Moji and Kurosaki, via Dairo, Kokura, and Okura, in the northern part of the island of Kyushu in Fukuoka Prefecture was opened to traffic on June 4, 1911. This line runs through a very populous district and should pay well.

(3) The Nagato Light Railway Co. was organized at Shimonoseki on March 9, 1911; capital, \$747,000. The road is to be built from Shimonoseki to Shomei City, in Yamaguchi Prefecture. The survey has already been made and construction on the first section from Shimonoseki to Kogusa is to be started during the present year.

(4) The Hizen Tramway Co. (electric) was organized in February, 1911 (capital, \$747,000), to build a 37-mile electric railway from Sonogi, a station on the main line of the Government railway about 37 miles from Nagasaki, on Omura Gulf, to Azambara, via Ureshino, and also to supply light and power to the towns along the route. It is also known as the Ureshino Railway.

(5) A charter was granted to the Hichiku Tetsudo Kabushiki Kaisha in May, 1911 (capital, \$249,000), for constructing a 9 2/5 mile light railway between Ohara and Arae, in northern Kyushu.

(6) A charter was granted March 2, 1911, for constructing a 37-mile light railway between Setaka and Waifu, in Kumamoto Prefecture, central Kyushu; capital of enterprise, \$996,000.

(7) A charter has been granted to a \$249,000 company for constructing a 11 1/5-mile light railway between Oyodo and Aoshima, in Miyazaki Prefecture, in southeastern Kyushu.

(8) A charter has just been granted for constructing a 4 4/5-mile light railway in southern Kyushu, between Kagoshima and Taniyama. This is said to be the first broad-gauge (4 feet 8 1/2 inches) light railway in Japan.

(9) A charter has been applied for to construct a 14-mile light railway through the famous Yabakei Valley, in northeastern Kyushu; termini Nakatsu and Kakisaka.

(10) A company has been formed to build a light railway from Aitsu, a station on the Shimbara Railway (previously mentioned), to Obama, at the foot of Unzen Mountain on the side opposite to Shimbara from where the ascent to Unzen (2,500 feet above sea level) is usually made coming from Nagasaki. The line is now being surveyed, and if found practicable the application for a charter will be made.

(11) Another projected railway to reach Obama from Nagasaki is via Himi-toge (Hime Pass) and is called the Nagasaki-Obama Railway. The road is to be a 26-mile electric tramway starting from Nakagawa-go, Nagasaki, thence up the Hongawa Valley to Himi-toge, where a tunnel may be bored to reduce the grade, thence along the coast of Shimbara Gulf passing Yagami, Yenoura, Uki, and Chijiwa, to Obama. A branch line is also contemplated from Chijiwa to Unzen, on top of the mountain. The power would be obtained from the two streams above Chijiwa, sufficient being generated to light the villages en route. The capital required is estimated at \$747,000.

(12) The Nagasaki Street Tramway Co. (capital, \$747,000) has applied for a charter to operate a line in the city and suburbs of Nagasaki. The company has been promoted by the directors of the Hakata Tramway Co. and prominent residents of Nagasaki. The 8-mile main line will run from Kosone, Nagasaki, to Tokitsu, on the Gulf of Omura, via the waterfront of Nagasaki, Urakami, and Michnoo. A branch line will be laid from Ohato wharf to Nagasaki-go, where it will connect with the proposed Nagasaki-Obama tramway. The power station is to be located in Nagasaki. In this connection it has been suggested to make connection with the Sonogi-Azambara railway (before mentioned) by a steam ferry from Tokitsu to Sonogi, on Omura Gulf.

(13) Another city tramway, capital \$100,000, has made application for a charter for a 4-mile line from the Nagasaki Prefectural Hospital at Urakami, about a mile beyond the city limits, through the city and to the normal school.

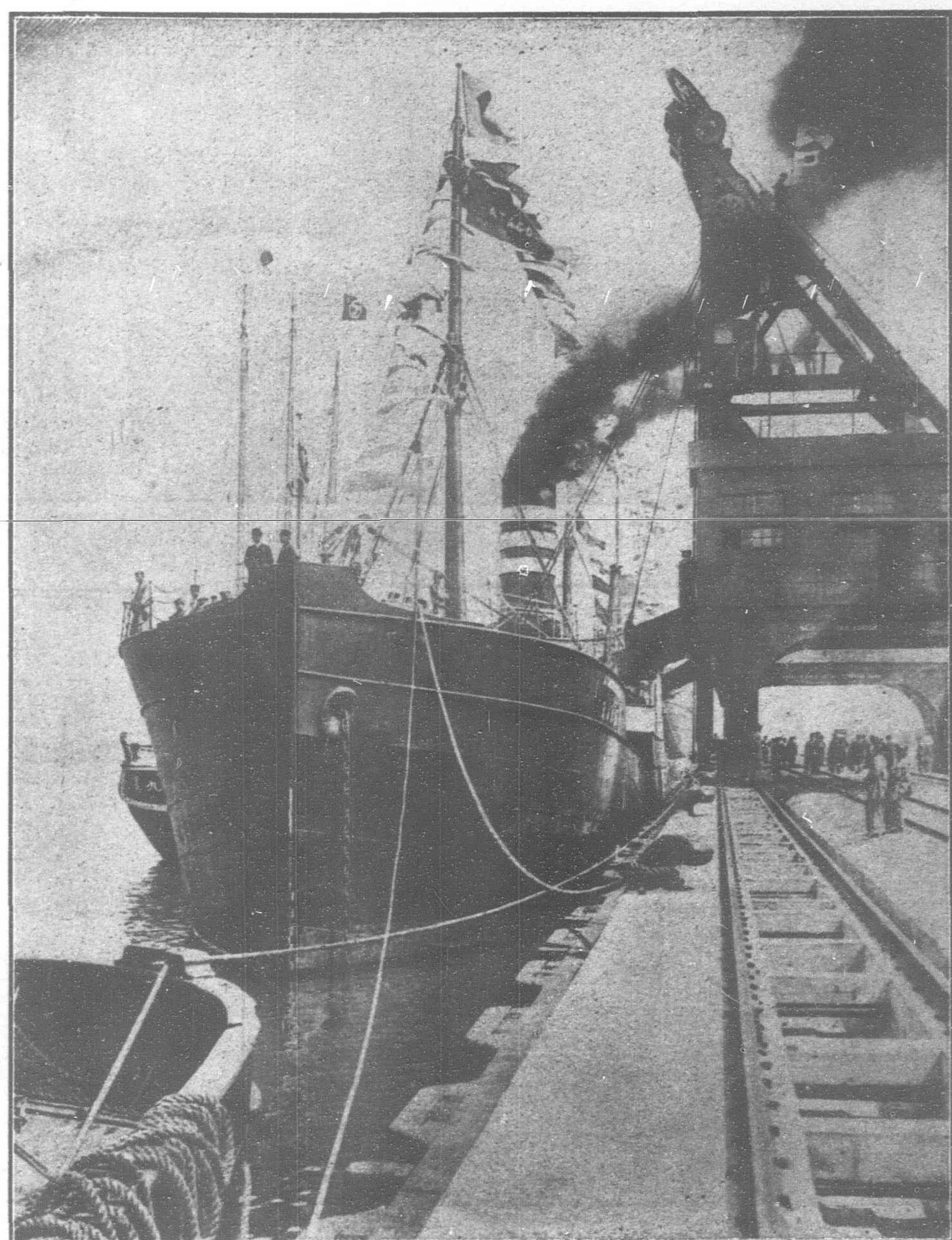
There are now four big tramway schemes under consideration in Nagasaki Prefecture—the Nagasaki Street Tramways Co., the Nagasaki-Obama Tramway, the Sonogi-Ureshino-Azambara (Hizen Electric Tramway Co.), and the Sasebo-Kita Matsuura Colliery Co. Railway.

There are many other lines projected, but their claims are too uncertain as yet to be mentioned as probable companies.

Projected Light Railways.—The following is a list of the light railways in operation in this consular district, with the amount of paid-up capital and last dividend where one was declared: Asakura Railway, \$106,000 (9 per cent); Bungo Railway, \$310,000 (8½ per cent); Chikugo Railway, \$250,000 (8 per cent); Dai Nippon Railway, \$725,000 (6 per cent); Dazaiju Railway, \$15,000 (6 per cent); Fukuhoku Railway, \$375,000 (10 per cent); Hikata Railway, \$500,000; Kokura Railway, \$10,000 (22 per cent); Kikuchi Railway, \$55,000; Kyushu Railway, \$787,000 (5 per cent); Mitsuimata Railway, \$60,000 (6 per cent); Nauchiku Railway, \$25,000 (10 per cent); Saga Railway, \$20,000 (4 per cent); Shimabara Railway, \$250,000; Tsuyasaki Railway, \$22,000 (6 per cent); Yanagawa Railway, \$37,000; Yutoku Railway, \$80,000.

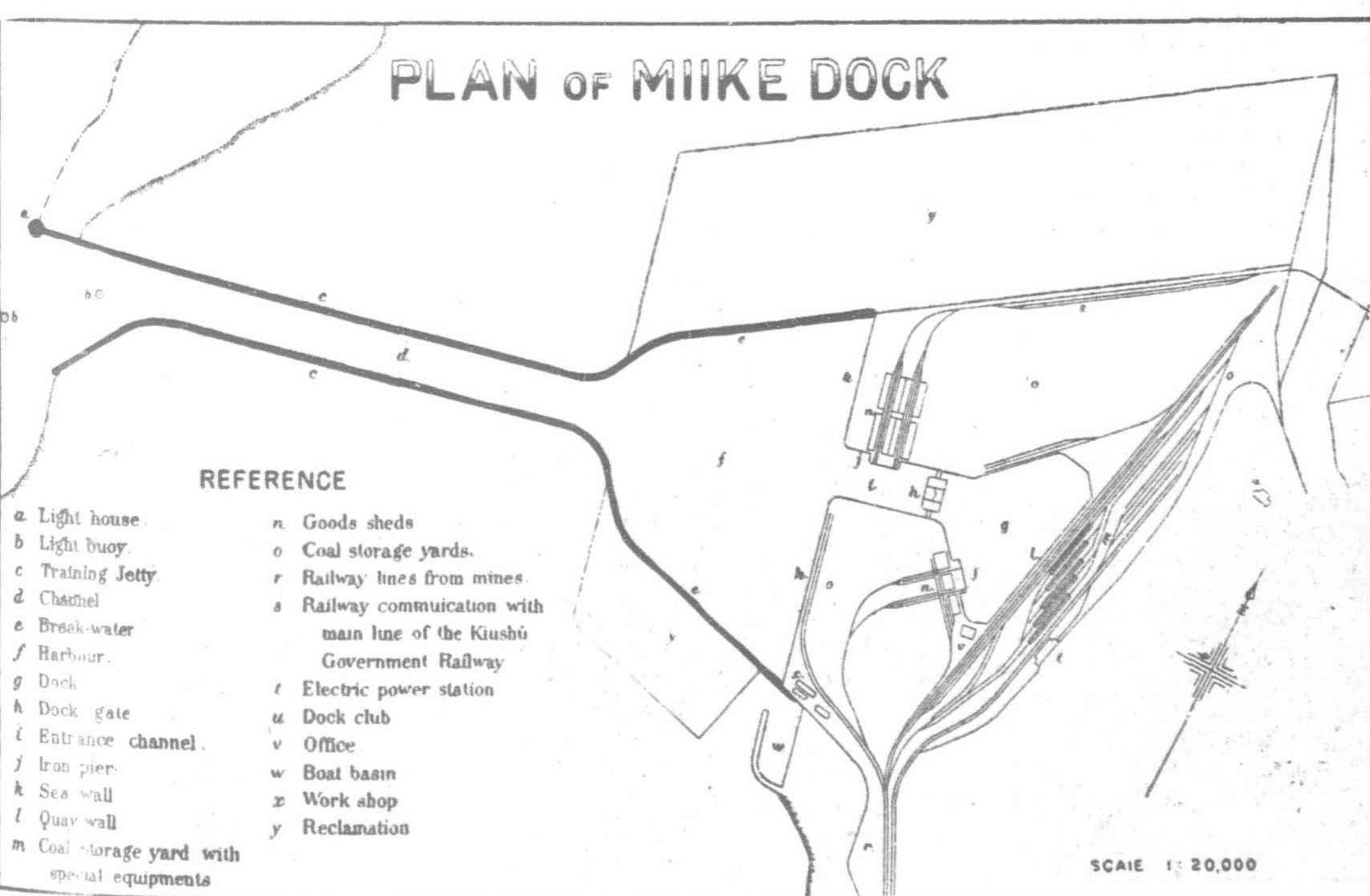
The Prefecture of Fukuoka, in the northern central part of the island of Kyushu, has more railways and projected railway companies than any other Province in the island, in fact more than all the others combined, and it also stands first in the number of electric light and power companies. The following is a list of the railway and tramway companies organized and awaiting charters in the Prefecture of Fukuoka: Ashiya railway, Chikushu Electric Railway, Chikuzen Electric Railway, Chitose Tramway, Hakubei Electric Railway, Hoshu Electric Railway, Hochiku Electric Railway, Kurate Railway, Kyusuku Electric Railway, Miike Electric Railway, Mitsui Electric Railway, Naokata Electric Railway, Ryochiku Electric Railway, Ryu-hoku Railway, Takura Railway, Taama Electric Railway, Wakamatsu Electric Railway.

Electric Light and Power Plants.—The number of electric light and power companies in this consular district is increasing rapidly, new ones being organized in all parts of Kyushu. Most of the companies that first entered the field were quite successful, especially the hydroelectric, and dividends of 10 per cent and more are being distributed, so the rush is on with vigor to secure water-power



MIIKE DOCK: PATENT COAL LOADER

PLAN OF MIIKE DOCK



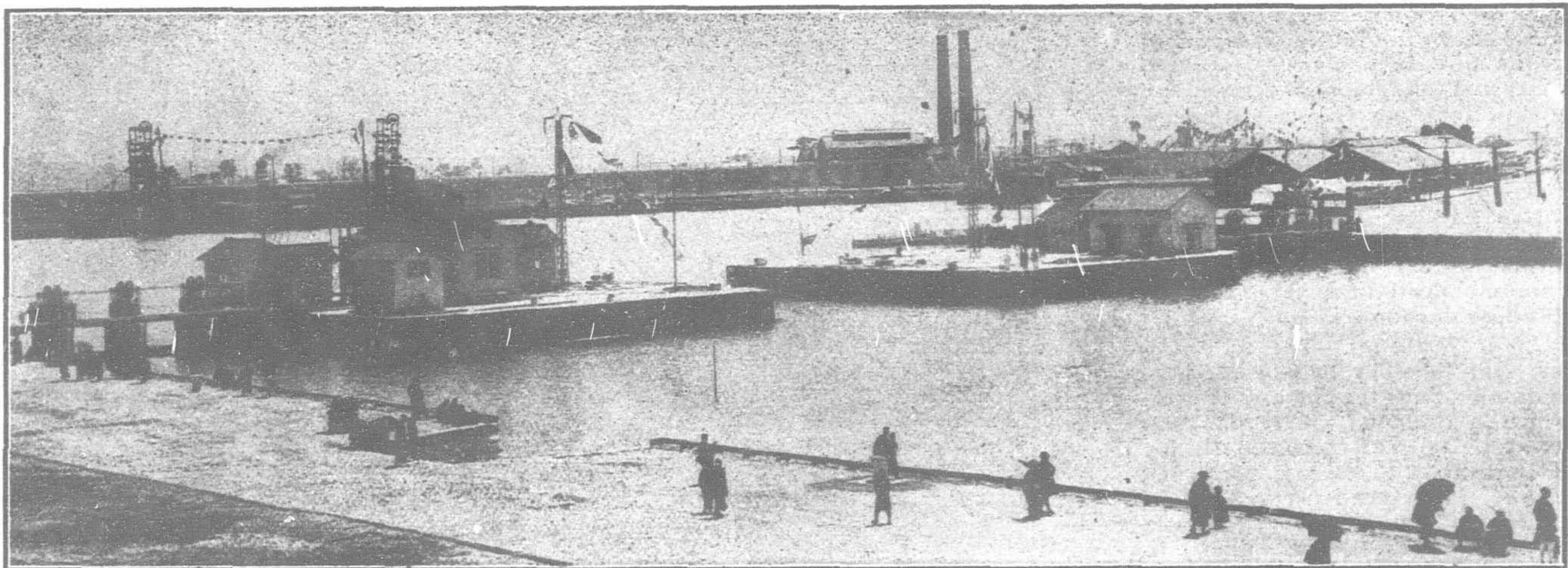
rights on the streams, and the promoters are busy with the prospectus of their respective schemes, many of which are really good.

The Nagasaki Electric Lighting Co. has made arrangements by which the plant will be enlarged and modernized and engage in the supply of power as well as light. A new plant is to be built.

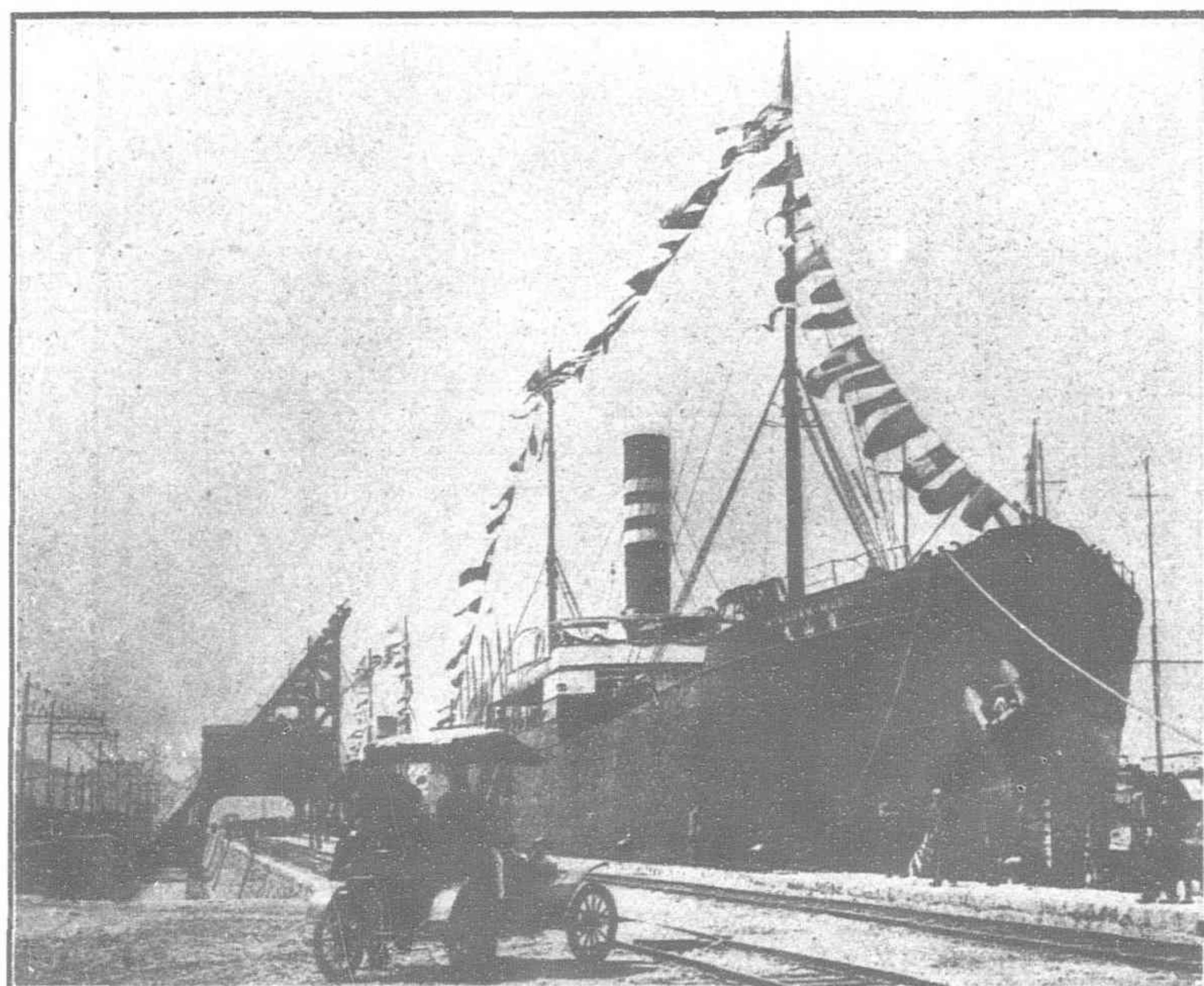
It is reported that the Hizen Electric Tramway Co. is also going to enter the field in Nagasaki in competition with the Nagasaki Electric Lighting Co. and put in a power plant in the city, but the rumor lacks confirmation. The Hizen Tramway Co. is to operate the line from Sonogi via Ureshino to Azambara, a station on the Karatsu branch of the Imperial Railways to the west coast of Kyushu.

For some years past it has been reported that a large company would be formed to utilize the water powers of the island of Kyushu on a big scale, and this plan seems to have been realized on April 5, 1911, when the Kyushu Hydroelectric Co. was organized in Tokyo with a capital stock said to be \$4,000,000. The scheme is to develop electric properties, buy rights already granted over river courses and acquire new ones, make investigations and surveys of the different streams, and do a general electric business.

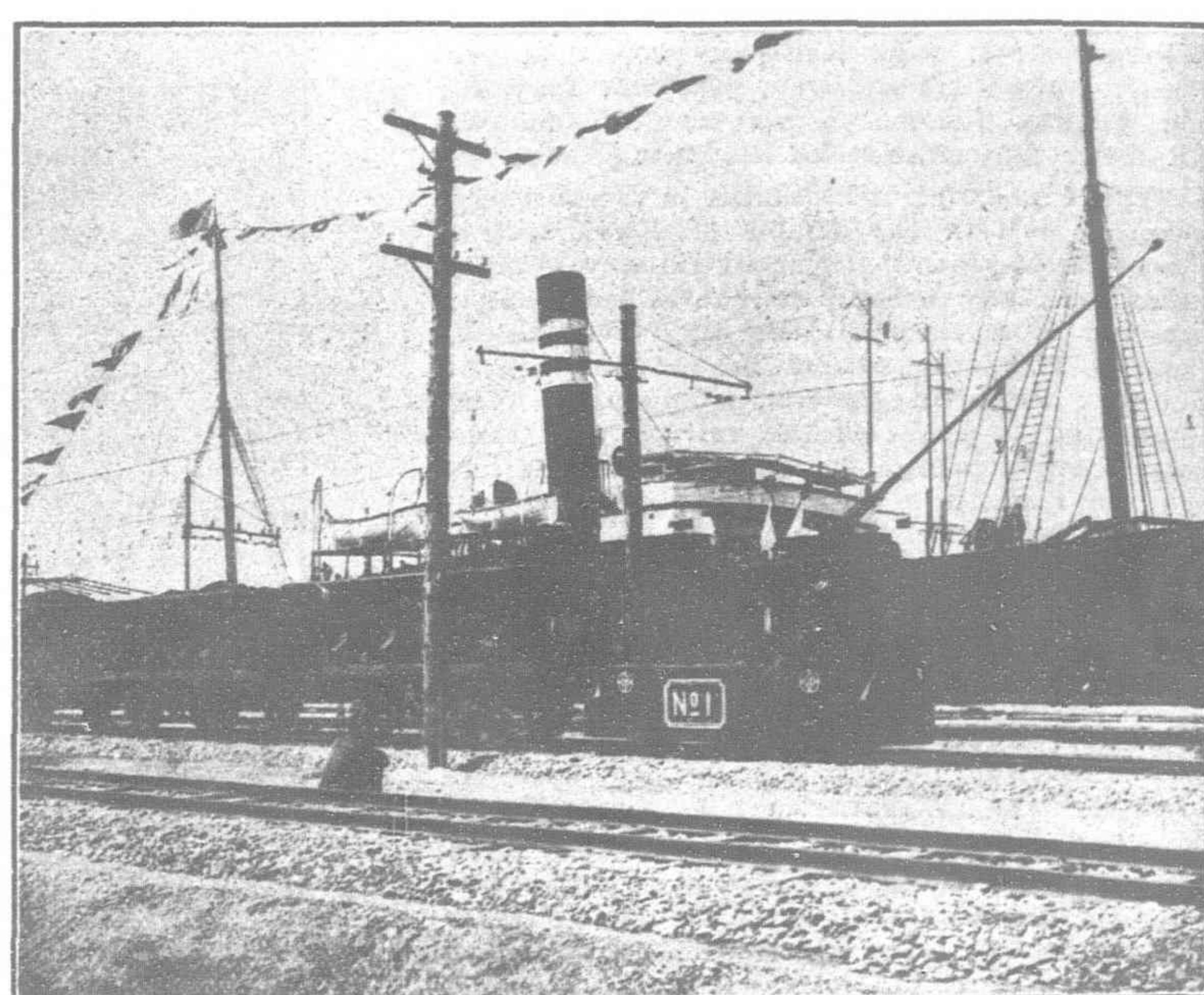
The purchase of the Hita Hydroelectric Co. in Oita Prefecture for \$220,000 was authorized and the expenditure of \$100,000 on the acqui-



MIIKE DOCK GATE



MIIKE DOCK: QUAY WALL



MIIKE DOCK: ELECTRIC LOCOMOTIVE WITH COAL TRAINS

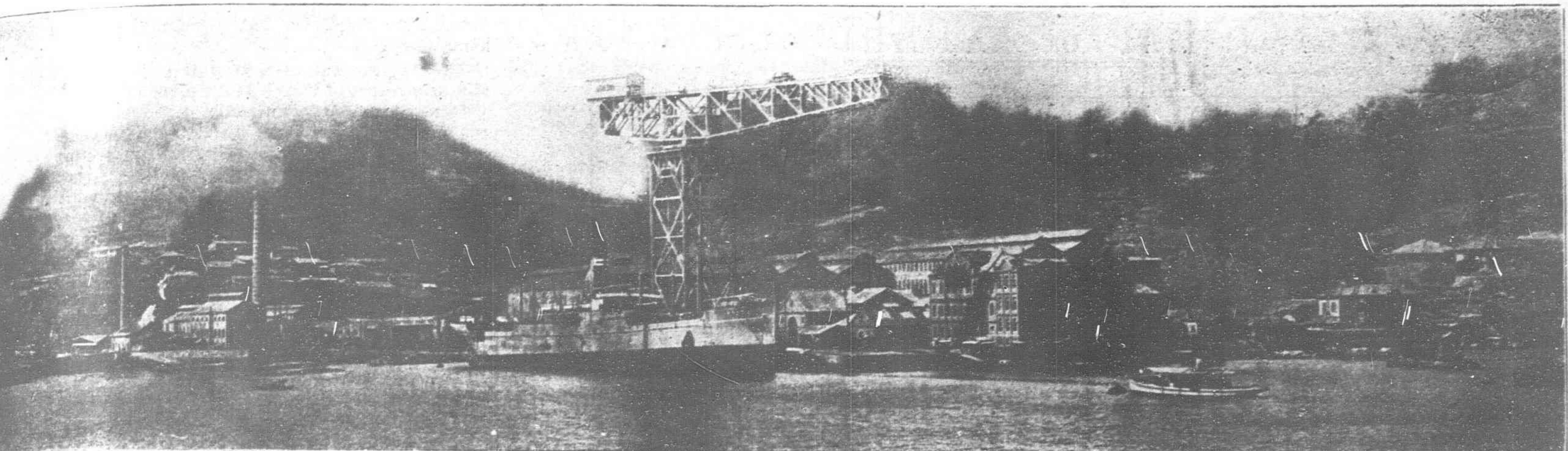
sition of water rights. A large power station is to be erected at Hita, on the upper reaches of the Chikugo River, the largest stream in Kyushu, which plant will be capable of developing 20,000 horse-power, of which 5,000 horsepower is expected to be supplied to the Government iron foundry at Wakamatsu and the remainder to the Chikuho collieries and the villages en route. This is the largest electric company operating at present in Kyushu.

The following is a list of the electric-light companies now in operation in this island, with the amount of paid-up capital and latest dividend paid: Gotoji Electric Light Co., \$33,000 (10 per cent); Hakata Electric Light Co., \$350,000 (12 per cent); Hita Hydroelectric Co., \$125,000 (10 per cent); Hyuga Hydroelectric Co., \$75,000 (11 per cent); Kaho Electric Light Co., \$50,000; Kagoshima Electric Co., \$175,000 (10

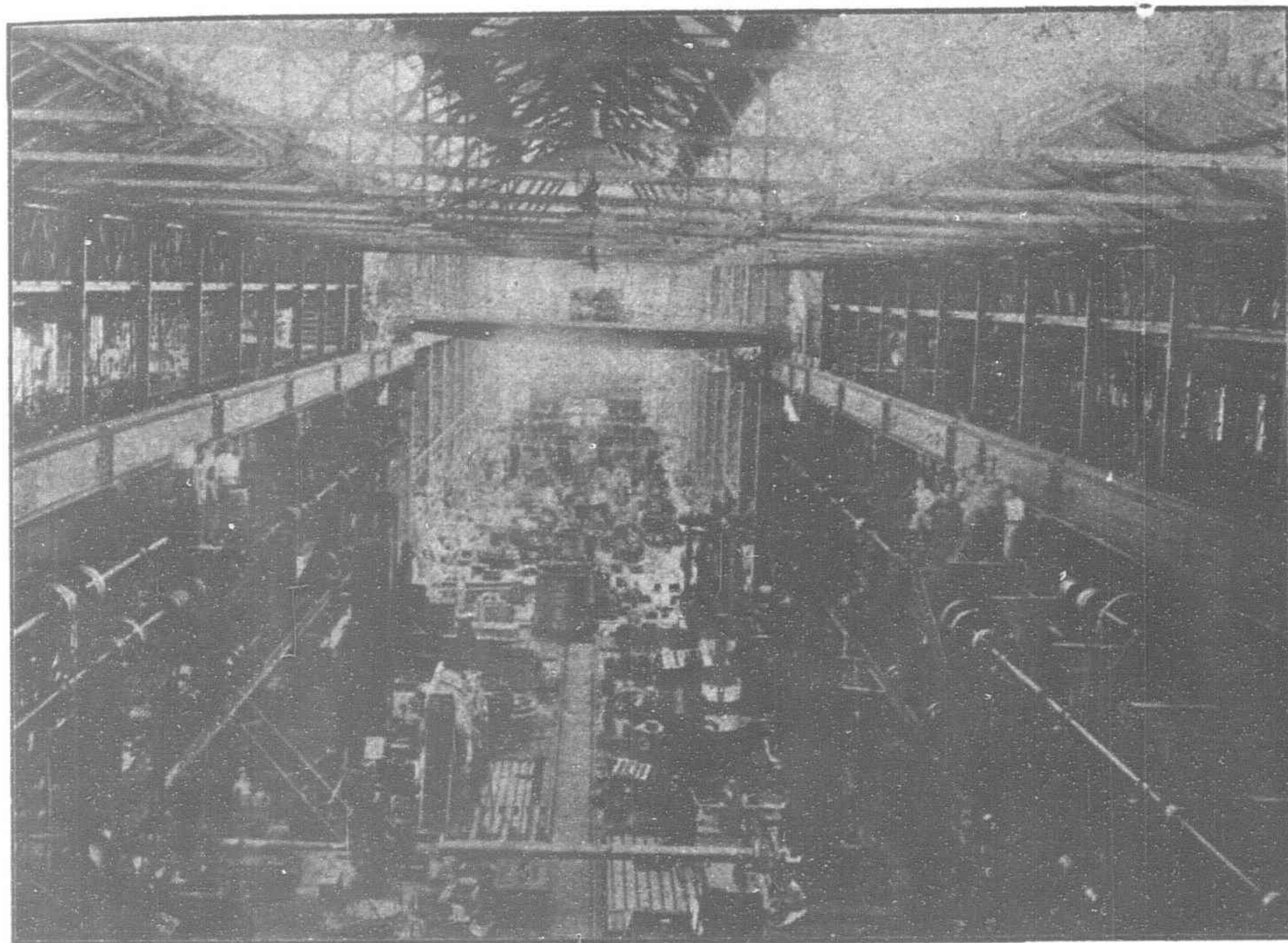
per cent); Kumamoto Electric Co. \$62,000 (10 per cent); Kurume Electric Light Co., \$68,000 (10 per cent; Kyushu Electric Co., \$477,000 (7 per cent); Miyakonojo Electric Co., \$52,000 (5 per cent); Nagasaki Electric Light Co., \$100,000 (6½ per cent); Naokata Electric Light Co., \$53,000 (8 per cent); Nakatsu Electric Co., \$50,000; Oshima Electric Co., \$6,000; Saiki Electric Co., \$22,000; Sasebo Electric Light



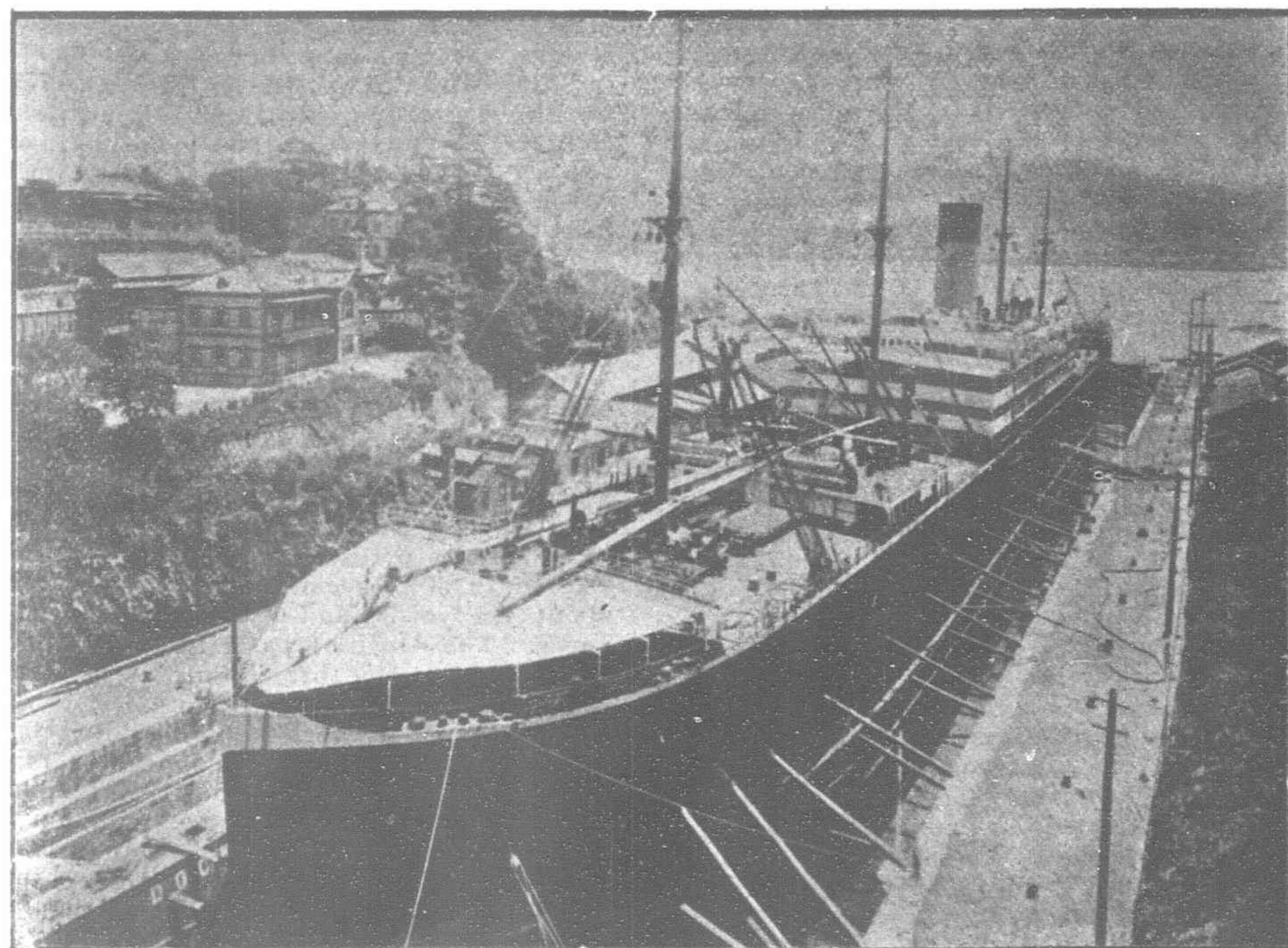
MIIKE DOCK: COAL STORAGE YARD



GENERAL VIEW, MITSU BISHI DOCKYARD AND ENGINE WORKS, NAGASAKI, JAPAN



MACHINE AND ERECTING SHOPS OF THE MITSU BISHI COMPANY AT NAGASAKI



S. S. MINNESOTA IN NO. 3 DOCK

Co., \$3,000,000 (15 per cent); Shimabara Hydroelectric Co., \$36,000 (7 per cent); Takeda Hydroelectric Co., \$15,000 (10 per cent); Usuki Electric Co., \$20,000; Wakamatsu Electric Light Co., \$50,000 (15 per cent); Yawata Electric Co.; Kanada Electric Co.; Taikan Electric Light Co., 15,000 (building).

The following-named electric light and power companies have been organized in the different prefectures of Kyushu and have applied for charters for engaging in business:

Nagasaki Prefecture.—Hirado Electric Light Co., Sonogi Electric Light Co., Keichiku Electric Light Co., Mogi Electric Light Co.

Oita Prefecture.—Mori Electric Co., Tsusu Electric Co., Kamaye Electric Co., Kokuto Electric Co., Inukai Electric Co.

Miyazaki Prefecture.—Kirishima Hydroelectric Co., Aburatsu Electric Co., Minami Kyushu Electric Co.

Kagoshima Prefecture.—Sendai Electric Co., Kajiki Electric Co., Demizu Electric Co., Shifushi Electric Co., Makurasaki Electric Co.

Saga Prefecture.—North Kyushu Electric Co., Karatsu Electric Light Co.

Kumamoto Prefecture.—Ushibuka Electric Light Co., Hondo Electric Light Co., Hitoyoshi Electric Light Co.,

Fukuoka Prefecture.—Moji Electric Co., Yamashima Electric Light Co., Tsuyasaki Electric Co., Fukuoka Electric Light Co., Itoshima Electric Light Co., Mayebara Electric Light Co., Fukushima Branch, Kyushu Electric Co., Orio Electric Light Co.

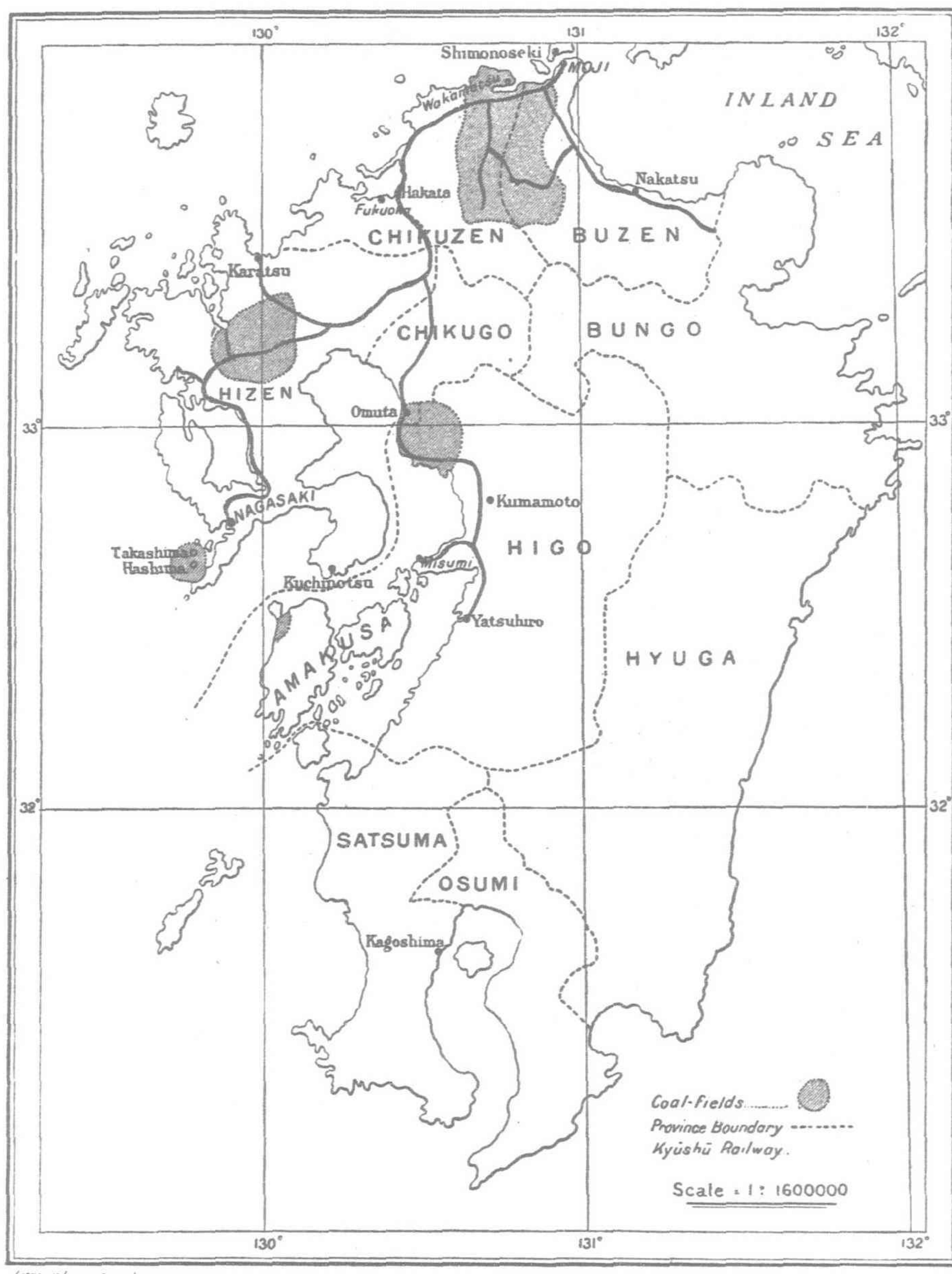
Coal—Coking Enterprise—Gold and Cement.—The mining of coal, next to agriculture, still remains the most important industry of this consular district, the annual output aggregating 12,000,000 to 13,000,000 tons, valued at about \$20,000,000 United States gold.

The Mitsui Bussan Kaisha are the largest operators, their mines producing about half of the output, and the Mitsubishi Co. second, with about 15 per cent of the total output. The total value of the output for 1910 in this consular district, which also includes the Prefecture of Yamaguchi, on the main island, Hondo, and the Prefecture of Okinawa, composing the Loo Choo Islands, amounted to \$19,105,699.

The Mitsubishi Bussan Kaisha have been making experiments at their mines in Miike, Kumamoto Prefecture, in the manufacture of coke, and as a result are now installing a \$1,000,000 plant to make coke on a large scale and to utilize all by products. A German engineer, who is to superintend the construction of the plant, arrived here in August, 1911, and plans to have the plant in operation in 10 months, when it will be possible to produce from 300 tons of coal dust the following products: 1,500,000 cubic feet of gas for motive purposes, 180 tons of coke, 20 tons of coal tar, which will be further manufactured into oil and pitch, and 3 tons of ammonia. This undertaking is said to be the first of its kind in connection with Japanese collieries.

Gold is also mined on the island of Kyushu, the average annual yield being about \$1,000,000, and the industry is not increasing rapidly. Copper comes next, with an average annual output of \$500,000, and silver about \$50,000.

MAP OF KYŪSHŪ



Several cement factories are in operation in different parts of the island, principally at Moji, Wakamatsu, Yatsushiro, and Saga. The amount of the annual production was not ascertainable, nor the value.

Agricultural Resources—Textile Fabrics.—Agriculture is still the most important industry of this island and rice the most valuable crop. Over 1,000,000 acres are devoted to rice and the value of the annual crop is \$60,000,000 to \$65,000,000, the amount raised being about 7,500,000 koku (37,000,000 bushels) out of a total production for Japan of 46,000,000 koku, or about 230,000,000 bushels.

Kyushu rice has the reputation of being among the best grown in Japan, and usually commands a higher price than that from other parts of the country. At present the price of rice is unusually high, due to the shortage in the eastern part of Japan, and the possibility of still higher prices is causing considerable uneasiness to the Government. The price at Nagasaki the beginning of September was \$9 per koku (5,118 bushels).

Camphor is still produced here in paying quantities, and practically all the camphor and camphor oil produced in Japan proper comes from the island of Kyushu. The output of crude camphor annually amounts to from 500,000 to 750,000 pounds, and of camphor oil about 1,250,000 pounds.

A special cotton tissue called "kasuri," generally used in making the ordinary Japanese kimonos, is manufactured in Kurume, in the northern central part of Kyushu. The average annual output amounts to about \$750,000, and silk obi (special sashes for Japanese women's clothes) are manufactured at Hakata, northwestern part of Kyushu, which is noted for the fine weave and designs of the silk. The average annual output is valued at about \$250,000.

New Public Works and Enterprises.—Among the public improvements in Nagasaki may be mentioned the new Kencho (prefectural government building and assembly hall), which was completed this year at a cost of \$300,000 and was opened with much ceremony on May 15, 1911.

Construction is about to commence on a new \$75,000 railway station at Nagasaki by the Imperial Railway Board, a necessary improvement.

The population of Nagasaki is still increasing at a normal rate, the population on January 1, 1911, being 178,000. The cost of living has increased to such an extent that the city government increased the salaries of all its officials from mayor down by 20 per cent from April 1, 1911.

It has been proposed to remove the Fisheries Experiment Station from the small island of

Hirado to Nagasaki, but it has not yet been sanctioned.

The laying out of a mountain park at the summer resort of Unzen Hot Springs on Mount Unzen, Shimabara Peninsula, 2,500 feet above sea level, and about 35 miles from Nagasaki, was provided for by the Nagasaki prefectural Government and an appropriation of \$65,000 made to cover the expense of this work, which began this spring with the building of roads and trails up the mountain, laying out tennis courts, making a swimming pond, a 9-hole golf course, and setting out trees. The appropriation is to continue three years. This improvement is intended to attract summer visitors from China who now go to the resorts in eastern Japan.

The newly established Engineering College of the Imperial Kyushu University at Fukuoka was opened September 11, 1911, the beginning of the school term.

All these improvements in public works, the opening up of hitherto undeveloped resources and modernizing of the public utilities, indicates that confidence has been restored in this section of Japan, that capital is seeking investment, and that the revival of business in this district bids fair to continue.

Miike and Kuchinotsu—The port of Miike, opened in 1908, is growing rapidly. It exports chiefly coal and imports raw cotton and oil cake, both of which come from China. A branch of the Kanegasuchi Spinning Co. is located here, and a considerable quantity of cotton thread is manufactured.

Exports from Miike for 1910 were valued at \$1,845,543, an increase over 1909 of \$583,912. Imports were valued at \$351,494, an increase of \$291,751. This large increase in exports was due to the fact that a Japanese company, the Mitsui Bussan Kaisha (the owner of the coal mines at Miike), secured the contract to furnish the United States Army Quartermaster Department in the Philippine Islands with coal, and, as a consequence, heavy shipments of that article, which forms over 90 per cent of Miike's total exports, have been made.

The total number of vessels entering the port of Miike in 1910 was 245, with an aggregate tonnage of 512,751, an increase over 1909 of 114 vessels and an increase in tonnage of 277,990. Of the above, 93 vessels, with a tonnage of 243,737, were foreign, an increase over 1909 of 75 vessels and 204,254 tons.

The port of Kuchinotsu shows a decrease of \$897,549 in exports, due to the fact that the Mitsui Bussan Kaisha transferred its offices and business to Miike. It is very probable that Kuchinotsu will soon cease to be an open port.

New Flour Mill—Harbor Improvements.—It was expected that the construction of the buildings and the installation of the machinery for the Dairi flour mill, near Moji, would be completed by July 1911, and the mill be in operation by August of the same year. The motive power is electric. Raw material will be drawn from Kiushu and other parts of Japan, and from foreign countries. The capacity of the mill is 106,400 bushels per day. The products of this mill will probably be able to compete with imported flour in both quality and price.

Improvements in the Shimonoseki Straits commenced in 1900, and work has been progressing ever since. The sum of \$249,000 for the work was appropriated in 1910, and a grant of \$498,000 for the present fiscal year (beginning Apr. 1, 1911) was decided upon. The fairway to be improved extends a distance of 13 miles. The width of the straits at Hayatomono seki is about 500 yards, and at Yoichibei about 900 yards. The depth of water for this distance is to be made 33 feet throughout, but is intended to be increased subsequently to 40 feet.

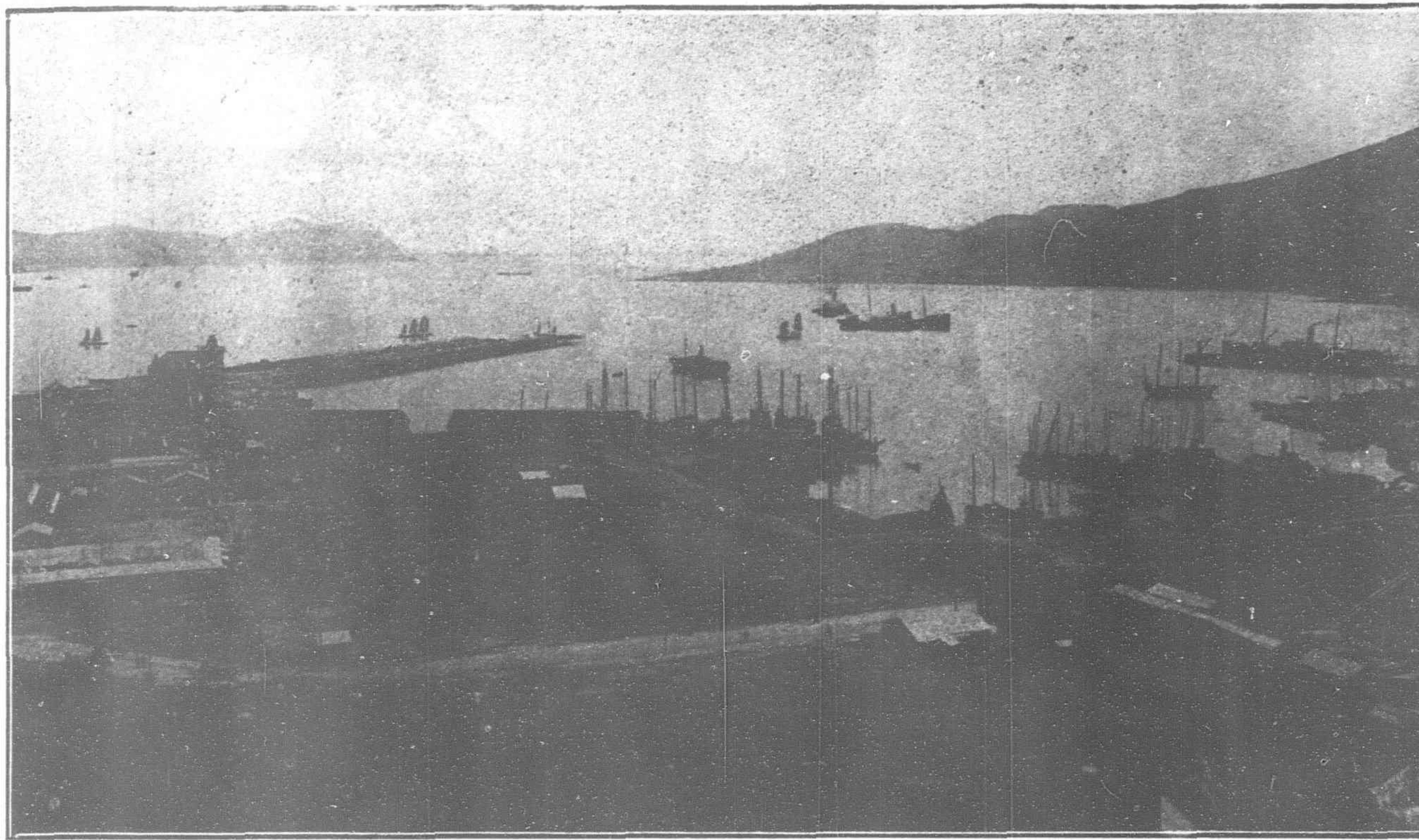
The question of constructing a bridge between Shimonoseki and Moji is independent of the improvement of the straits, and, it is estimated, would cost about \$14,940,000. In the opinion of some engineers, it would be more advantageous to connect the two cities by tunnel under the sea. It is, however, doubted if this large sum, in addition to the \$9,960,000 already provided for the improvement of the channel, can be spared at the present time.

REFORMS AND PROGRESS IN KOREA

The annual report issued by the Government General for the fiscal year 1909-1910 is the latest official review of the reforms inaugurated and the remarkable progress made along lines of development under Japanese administration. Industrial undertakings were encouraged, an

The Government General of Chosen is known as the Residency General responsible directly to the Imperial Japanese Government. Up until December 1909, the railways of Korea were under the control of the Railway Bureau of the Residency General, when it was brought

The census returns published in May 1910 showed a native population of 12,934,282, and of Japanese and foreign population, 156,574. Of the latter there were 146,147 Japanese, 9,568 Chinese, 493 Americans, 158 English, 96 French, 45 German, 18 Russian, 12 Greek, 11



CONSTRUCTION WORK OF NEW CUSTOMS COMPOUND AND WHARVES AT FUSAN

extensive program of public works inaugurated covering the construction of railways, roads, port works, public buildings, and effective methods for the furthering of industrial training in the department of reduction have been employed with good results.

The Port of Moji.—Moji, on the Kiushu side of Shimonoseki Straits, has grown in importance to such extent that its trade far exceeds that of Nagasaki, exports for 1910 being \$7,703,768, as against Nagasaki's \$1,645,372, and imports \$9,314,154, as against Nagasaki's \$4,441,616. The port facilities, however, are not good.

The principal export from Moji, which is a distributing center, is coal, the total shipments for 1910 amounting to 2,808,341 tons, valued at \$6,364,938; an increase over 1909 of 33,840 tons. These figures include the exportation to other Japanese ports, the number of tons sent to foreign ports being 898,498, an increase of 66,526 tons over 1909. By countries, Moji's foreign trade for 1909 and 1910 was:

Countries.	Imports.		Exports.	
	1909	1910	1909	1910
United States.....	\$890,476	\$1,042,051	\$63,942	\$197,762
Asiatic Russia.....	58,828	282,665	19,347	34,534
Belgium.....	52,695	48,585	5,229	340,254
British India.....	2,602,972	3,223,831	192,612	76,451
China.....	1,119,164	1,418,628	2,609,216	8,046,912
Dutch Indies.....	1,118,133	1,284,020	109,103	120,839
French Indo-China	76,194	202,441	67,282	42,814
Germany	250,589	359,977	6,486	3,487
Hongkong.....	32,388	47,805	1,565,496	1,892,240
Korea.....	318,995	288,801	72,864	457,156
Kwangtung Prov. .	47,947	293,039	171,045	1,059,817
Norway & Sweden	48,538	118,616	85	85
Philippine Islands.	107,801	408	69,152	828,600
Straits Settlements.	4	6,241	288,771	291,941
United Kingdom...	729,309	783,939	275,092	159,884
Other countries....	11,291	28,167	107,445	117,042
Total.....	7,831,524	9,314,154	7,024,082	7,703,768

Shimonoseki, Wakamatsu, and Hakata.—Shimonoseki, on the mainland, opposite Moji, and connected with the latter by ferry, has shared, though not to the same extent, in the general prosperity and advance of the straits.

under the control of the Imperial Government Railway Board of Japan by Imperial Ordinance the Residency General of Chosen retaining the right to take the initiative in railway construction and in regulating traffic. The Japanese garrison in Korea is also under Imperial control.

The harbor does not afford good anchorage and will require the expenditure of vast sums in dredging, etc., before it can be considered safe.

Wakamatsu is the port where the Imperial Government iron foundry is located. Since its establishment, the object of which was to make Japan independent of foreign countries in the matter of supplies for the army and navy and domestic concerns, the enormous sum of \$36,852,000 has been spent on this enterprise, if it can be called such, which, up to the present, has not proved successful and the working loss each year has been great, being estimated for 1910 at \$400,000. Several times bills to convert the foundry into a private or semi-official corporation, subsidized from the treasury, have been introduced into the Diet, none of which, however, has as yet become law. An appropriation of \$6,170,000 for the extension of the plant has been made.

The principal imports at this port are iron ore and other material for use in the foundry. The chief export from Wakamatsu, as of the other ports in this district, is coal, which shows a decrease to foreign countries but an increase to Japanese ports for 1910.

Hakata, situated on the northern coast of Kiushu, with a population of about 84,000, is a very wide-awake place, and, although its exports and imports both show declines for 1910, is considered to be prosperous and many new enterprises are under way, such as the formation of gas companies, and electric and steam railway undertakings.

An imperial university, costing \$298,800 and called the University of Kiushu, was established in 1910 at Fukuoka, which is the port of Hakata.

Canadian, 9 Norwegians, 7 Italians, 6 Australians, 2 Portuguese, and one Belgian.

During the year 1909-10 the Government General of Korea was reorganized. The Resident General's office proper remained unchanged. The executive departments are the Resident General's Secretariat, Department of Foreign Affairs, Supervisory Department and Department of Local Affairs.

Then there is the cabinet comprising the Home Department, Department of Agriculture, Commerce and Industry, Finance Department, and the Educational Department, thus reduced from six to four by the abolishment of the War Department, and the Department of Justice, both of which have been placed under the Imperial Government. With the change of the administration of justice to Japanese control it was believed that with the improvement to follow, the necessity of consular jurisdiction under the treaties with foreign powers would be removed. In this reference a former report of the Resident General may be quoted:

"Should the judicial systems in Korea be improved to the extent of being second in no respect to those of civilized countries and should they become competent to protect the life and property of foreigners, law abiding subjects or citizens of foreign nations would undoubtedly desire such positive protection in their activities in lieu of the negative preventative system of consular jurisdictions maintained by treaty powers. With a view to gradually reforming the judicial system of Korea, every possible effort is being made to train a body of native judicial officers in the legal training school, while the codification of criminal and civil laws and their procedures are being earnestly effected by the codes investigating bureau. But a competent judicial force cannot be trained as quickly as was expected; the work may take one or two generations."

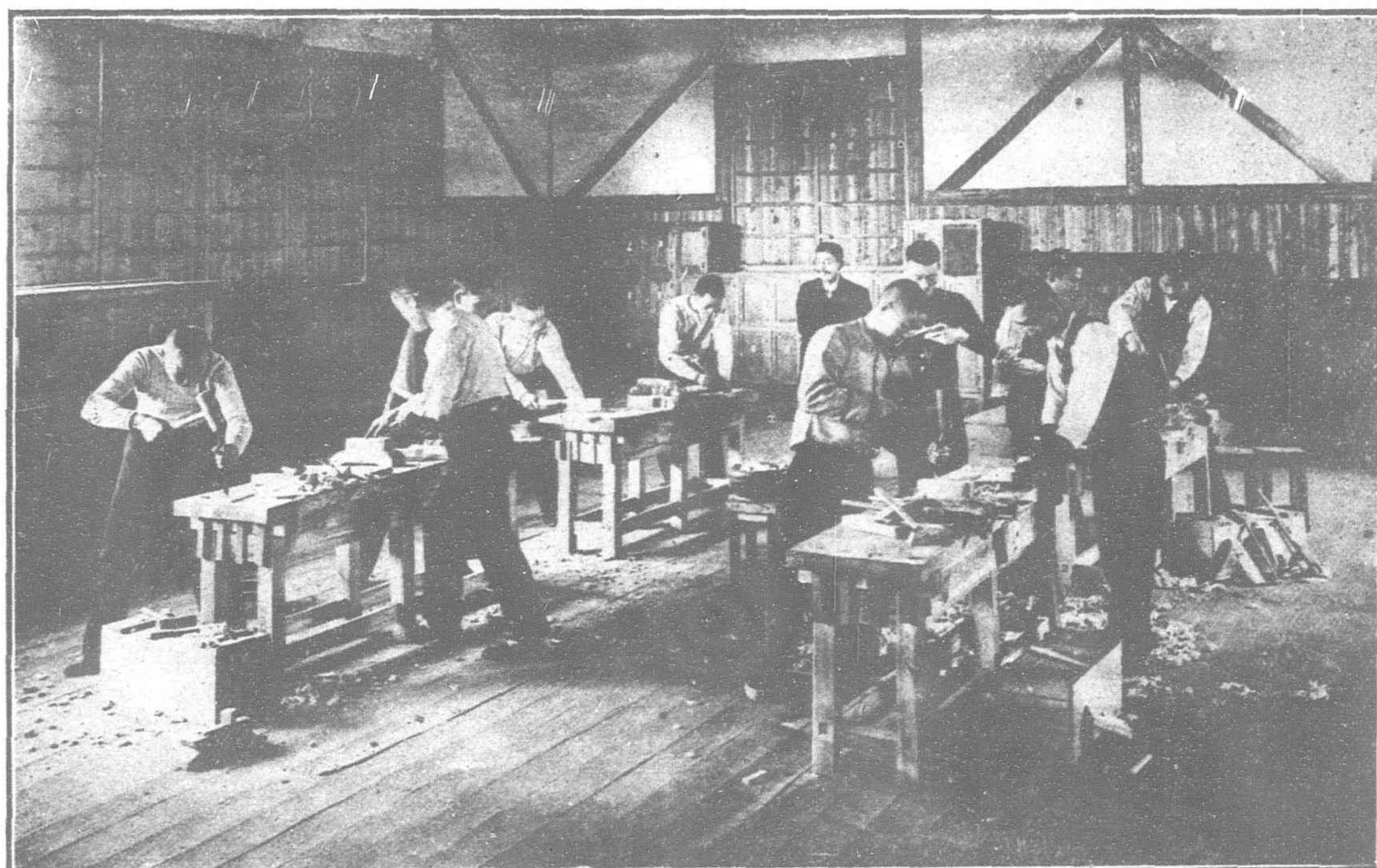
The recommendation therefore to have the administration of justice undertaken by the Japanese Government so that the protection of the

lines and property of foreigners would be assured was promptly approved for the above reasons and on July 12, 1909, the whole administration of justice and prisons was turned over to the Japanese government.

Peace and Order.—The police force com-

tached to each station. Telephones have been installed in each police station and the wiring represents 2300 miles of wiring. This results in most effective cooperation in any affected zone. During the year the operations of the Garrison army, the Gendarmerie, and

amounted to yen 11,565,592; revenue from state lands, yen 1,516,511; receipts from public undertakings, etc., yen 693,202; stamp revenue, yen 286,697 and other miscellaneous receipts 235,330 yen making a total of ordinary revenue of 14,787,332 yen. The extraordinary revenue



MANUAL TRAINING CLASS AT THE SHOUL NORMAL SCHOOL

ses 5,336 officers and men divided among 484 stations and sub-stations. This body of men is made up of 2,077 Japanese and 3,259 Koreans and serve as officers of the peace.

Besides this force there is the Gendarmerie under the control of the Japanese Garrison numbering 6761 and utilized for quelling armed rebellion. This body is divided into 499 stations and substations and has proven a very effective force.

The police organization includes two maritime police stations with five vessels at-

the police resulted in 3,000 insurgents killed, 286 wounded, 2,844 captured, and 2,091 surrendered. Surrendered insurgents were given employment on road construction.

Finance.—The equilibrium was maintained between expenditure and revenue, each being represented by 23,765,594 yen and a decrease of 5,462,417 compared with the previous term. This was due to the reduced allotments for the waterworks at Pyeongyang and Chemulpo now completed. The revenue derived from land tax, house tax, building, tobacco, liquor and salt tax

derived from special accounts, loans, etc., amounted to Yen 8,978,262. The total Korean debt at the end of the year was yen 44,126,453.

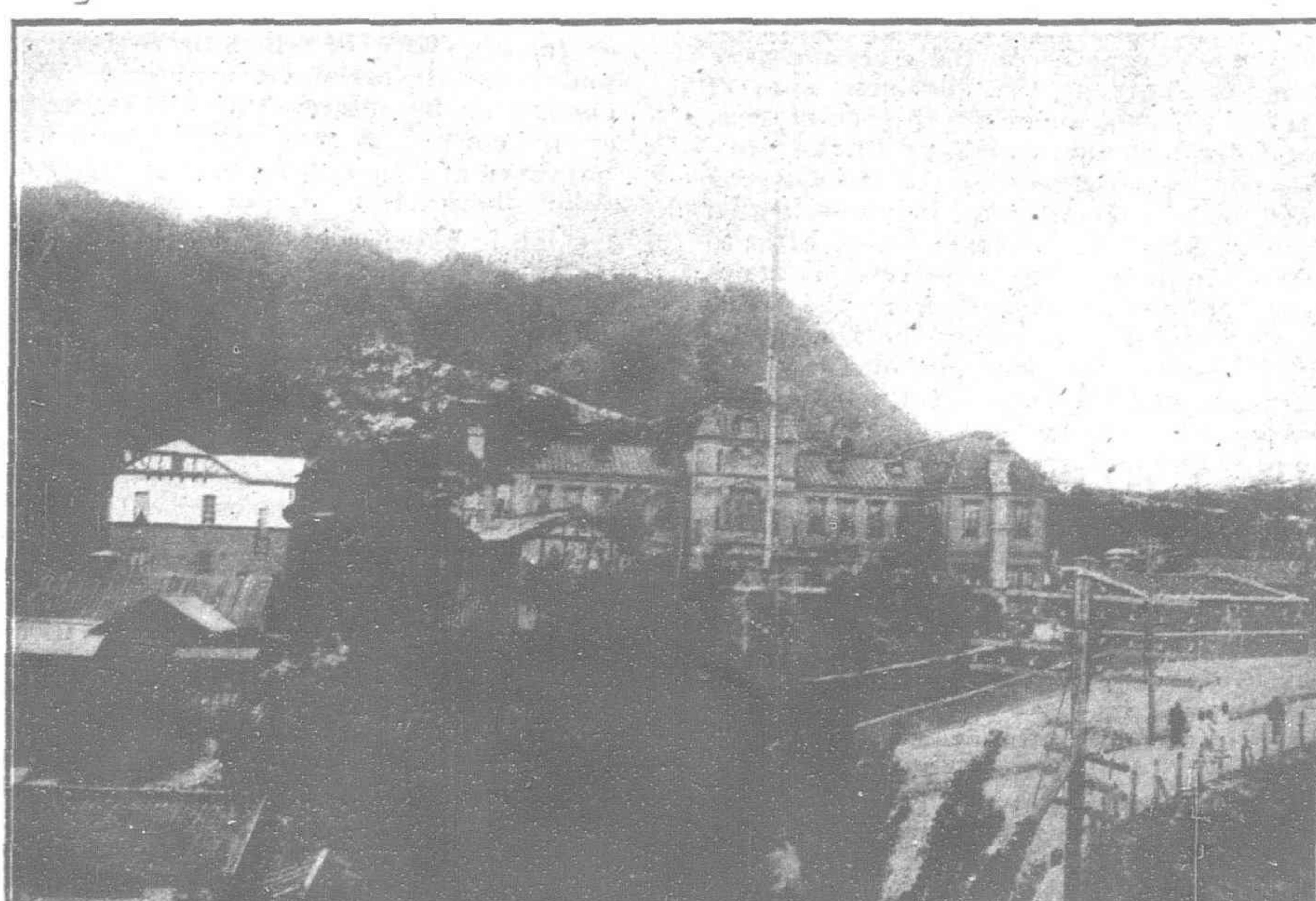
Among the government undertakings in Korea of importance may be included the Government Printing Plant which when completed will cost yen 438,438. The construction office expended yen 1,824,121 in the construction of public buildings and official residences during the year under review. This program comprised 798 buildings including the new agricultural bank premises at Wonsan and the tobacco factory at Seoul, police stations, court houses, official residences, etc.

Among other lines of governmental activity is the brick and tile manufacturing plants at Mapo and Yong-teung-po operated for the purpose of supplying building materials at low cost.


Near Chemulpo an experimental station for testing out salt works by sun evaporation has been successfully carried out with the result that spontaneous evaporation stations near Chemulpo and Chinnampo are now being constructed representing an expenditure of yen 1,150,000. When completed this year the Chinnampo salt basin will cover 6,000 acres, near Chemulpo 1200 acres and near Yon-gam-po 2,450 acres. The total output of these salt stations will reach approximately 200,000 tons per annum.

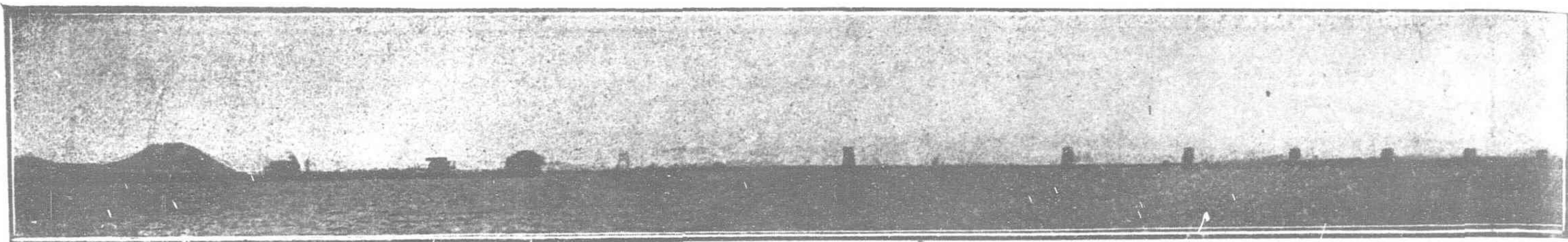
The government's activity is also apparent in the development of the Pyeongyang coal mine and the iron mine near Chinnampo. In connection with the coal mines 760,000 yen are to be expended during 1912-13 for the completion of the Chinnampo Pyeongyang railway. There are already 38 buildings erected including coal sheds, warehouses, etc., besides four landing stations, three piers. The last report available shows an annual output of 46,487 tons of coal, most of which was supplied the Tokuyama Coal Briquet Manufacturing Station maintained by the Japanese navy.

The product of the iron mines amount to 70,084 tons annually, most of which was sup-



THE RESIDENCY GENERAL





YALU BRIDGE CONSTRUCTION

plied the Yamamitsu Iron Foundry maintained by the Japanese government.

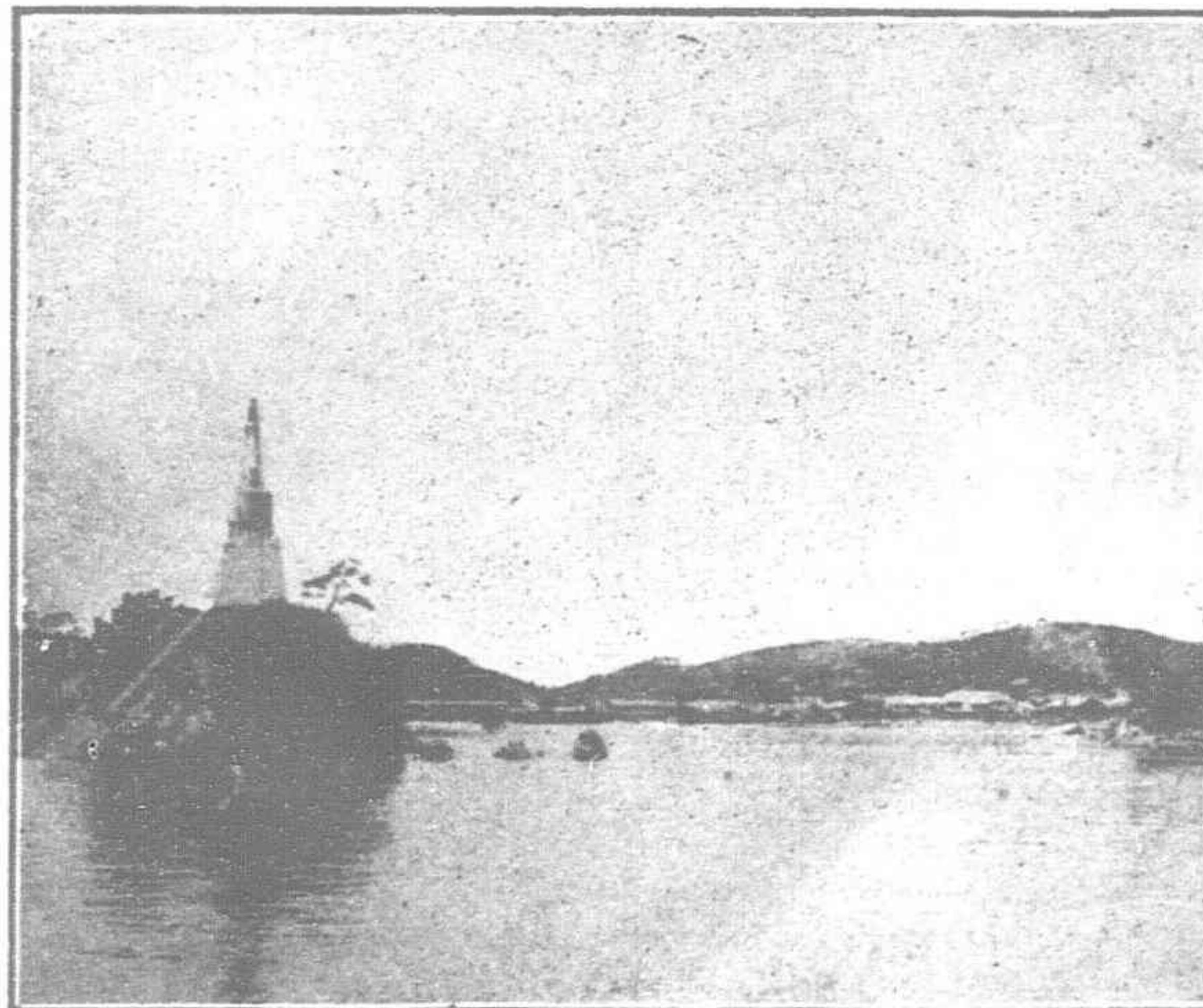
Railway Construction.—At the end of 1910 there were 674 miles in operation and 312 miles under construction. The two most important of these new railways the T'ui-yon-Mokpo line and the Seoul-Wonsan line are not expected completed before 1912.

With the completion of the Yalu bridge in November, 1911, and the operation of the Antung-Mukden line Tokyo may boast railway connection with European points. A ferry service has been inaugurated across the channel between Japan and Korea at Shimonoseki so as to facilitate through traffic from Tokyo across the peninsula to Manchuria. In the year ended March 31, 1911, there were 120,468

service is in operation covering 438 offices, of which 293 deal with parcel post, 292 are savings bank branches, 259 telegraph offices and 73 telephone exchanges. The postal routes cover a distance of 17,028 miles. Of ordinary mail matter 40,722,000 pieces were collected and 43,277,820 delivered during the year while there were 489,173 parcels collected and 750,967 delivered in the same period. Domestic money orders to the value of 24,498,778 yen were issued and yen 18,799,689 paid. The length of telegraph lines were increased to 3360 miles and the actual length of wire to 7,625 during 1909-10 and 2,505,388 messages represent the work of this bureau. The 73 telephone exchanges represented 255 miles of line and 7,930 miles of wiring. The number of sub-

imports was yen 36,648,770 and the exports yen 16,248,888. Of this trade Japan leads in 70% of the imports and 60% of the exports. In the imports Great Britain secured 17.7%, China 12% and the United States 6.5%. In exports China secured 14%, Russia 4.8%.

The reconstruction of harbor works and customs premises has made rapid progress. Appropriations covering this work covering the period from 1906-1913 amounted to yen 4,900,830 of which over half was spent at the close of 1909. From 1911 to 1913 there are yen 2,340,000 provided. The harbor improvement program covers twelve different points ten of which are sea ports. At Seoul, Pying-yang and Taiku extensions were made to the customs bonding warehouse facilities. The main works include the recon-



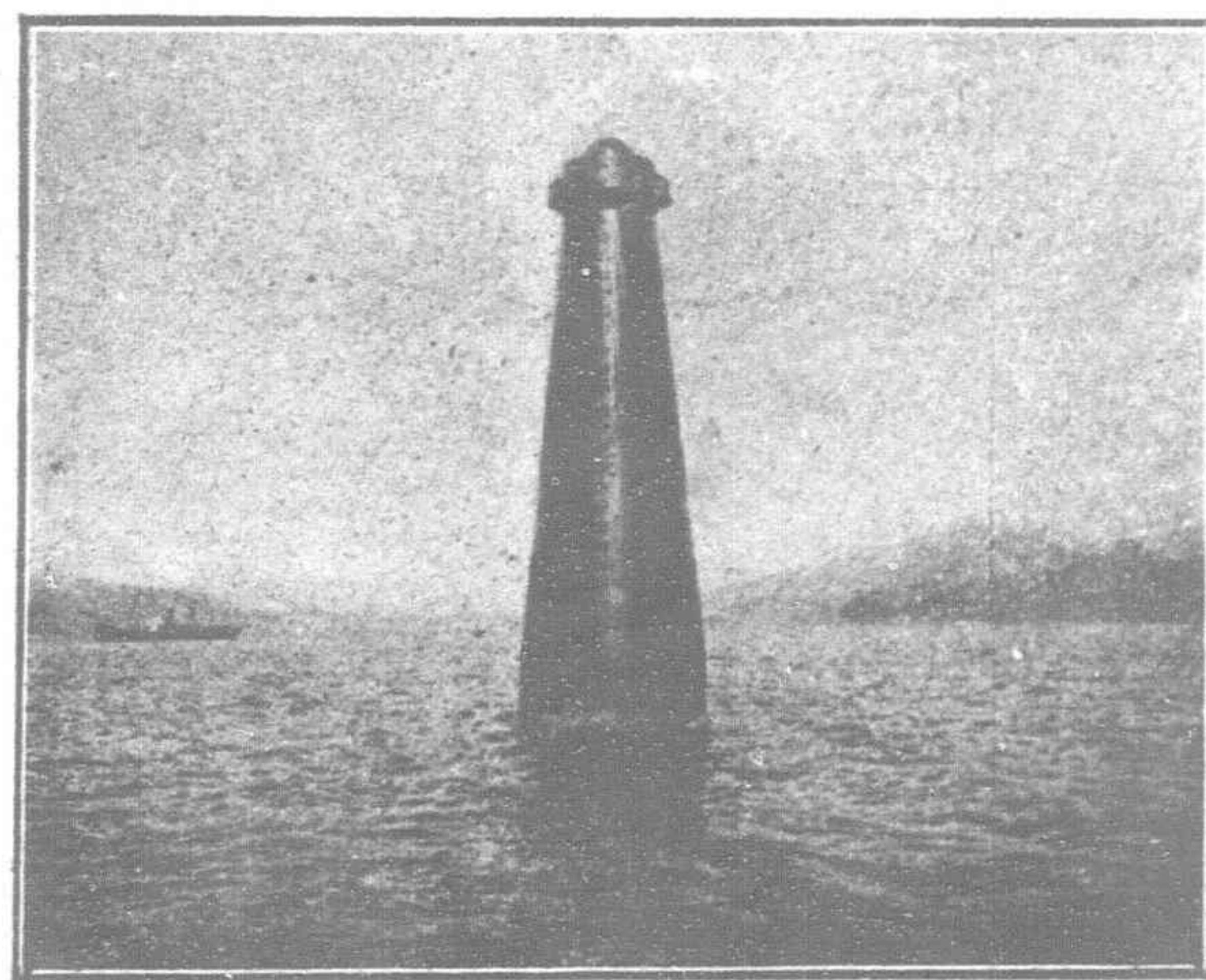
GAS BEACON AT CHINNAMPO

passengers and 63,820 tons of freight conveyed by the ferry service comprising four vessels with an aggregate tonnage of 6,779.

A splendid postal, telegraph and telephone

scribes 5,506 and the number of messages during the year was 16,781,141.

The total trade of Korea for 1909 was represented by Yen 52,897,658 of which the value of



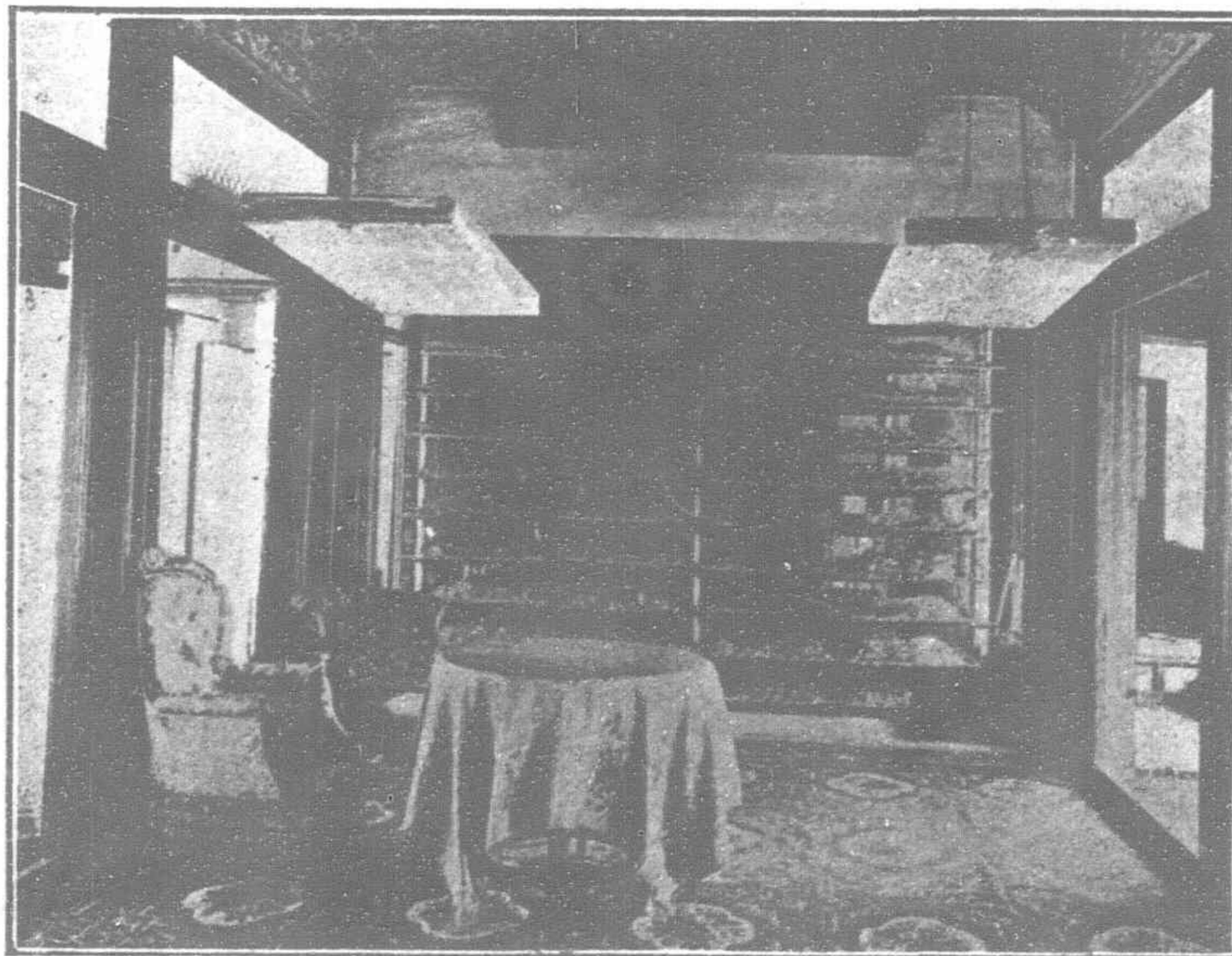
BEACON NEAR FUSAN

construction and extension of office buildings, residences, warehouses, sheds, cranes, piers, breakwaters, reclamation, dredging, etc. Among the ports included, Kunsan, Mokpo, Masampo and Taiku were completed the latter part of 1909 and continued progress has been made at Seoul Shin-wipu, Wonsan, Fusan, Chemulpo, Syong-jin, Chyong-jin, Chin-nampo and Pying-yang. There is every reason to believe that the program will be completed by the expiration of the eight year term referred to. Besides the above the municipality of Fusan has in hand extensive excavation and reclamation work covering in all an expenditure of yen 1,075,000 which will be completed in 1913.

The extensive seacoast of Korea requires an unusual number of lighthouses and effort is being made to provide the necessary beacons to give security and comfort to the merchant marine. At the end of 1909-10 there were in all 143 lighthouses, beacons, foghorns, etc., in operation and since that time every effort has been made to increase the effectiveness of the service.

The Department of Agriculture, Commerce and Industry has been active in the encouragement of agriculture, horticulture, sericulture and stock raising. Better seeds and improved seedlings have been liberally distributed from the different seedling stations and nurseries and the use of modern agricultural machinery is encouraged. In all the Department has distributed throughout the agricultural centers 100 rice threshing machines, 74 improved mattocks, 19 rope manufacturing machines, 495 matting machines and 50 patented matting machines.

(Continued to page 287)



SERICULTURE CONDUCTED IN PALACE

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THE CHINESE SITUATION

At the present writing Yuan Shih Kai is Dictator of China and in large measure there is restoration of confidence at home and abroad in the promise of an early and peaceful solution of the many problems confronting the empire. It is believed, with Yuan Shih Kai at the helm, that the many conflicting elements seeking recognition in the new government will be restrained from open contention and that a firm hand will feature the suppression of lawlessness and crime sure to follow the serious upheaval. There is every evidence that the Dictator will devote every energy to the restoration of law and order, the relief of famine sufferers, and will require that until a normal condition obtains throughout the empire, the progress towards the establishment of a permanent government shall be consistent with the wishes of the people restored to conditions of peace and tranquillity. He realizes that until such a condition is realized no reliable or representative expression of the wishes of the different provinces may be secured. On the other hand, if we judge from the many congratulatory telegrams received by Yuan, from all sections of the empire and from abroad, he enjoys a prestige that stamps his appointment as Dictator at this time as the most desirable outcome of the recent negotiations.

On February 12 an edict issued announcing the withdrawal of the Emperor from participation in the affairs of government and the appointment of Yuan Shih Kai as Dictator to proceed to form a new government for China that would meet the wishes of the country. This edict was accepted by the Provisional Government at Nanking and that body retired in favor of the Dictator pending the organization of such a government as delegates representing the different sections of the empire in convention would decide upon, ostensibly a republic.

The Chinese ministers at the foreign capitals were notified that their status as ministers was withdrawn pending reorganization, but that they would continue to represent China as diplomatic agents. The consular services were then notified by the legations of the new status of the latter and directed that they continue temporarily in the service for the present. Some confusion as to the national flag, not yet adjusted, followed this announcement. A new national flag made its appearance comprising an arrangement of five colors, red, yellow, blue, white, and black, representing the five Chinese elements antedating Confucius—fire, earth, wood, metals, and water. The consulates immediately retired the dragon flag, and up to the present writing have not replaced it, awaiting further advices.

As usual there is much misinformation in circulation respecting the real terms agreed upon between Yuan Shih Kai and the revolutionaries. Reports have it that Yuan will proceed to Nanking and establish himself there. This is not generally believed, since the accommodation for the government is limited at Nanking due to destruction during military activity there and funds are not available to cover the expenditure of reconstruction. Besides, there is doubt that such a move would meet with the approval of the powers. Against it also has been urged that a transfer of capital might endanger the loyalty of the northern provinces and the dependencies to the Dictatorship.

To the many messages congratulating him on bringing north and south China to an amicable understanding the Dictator invariably replied that the accomplishment was not to his credit but to the co-operation of the Chinese and that he would retire to private life as soon as a stable government was established.

With all his prestige and power Yuan Shih Kai has a difficult task before him. It is now no longer conflict between the Chinese and the Manchus he must fear, but conflict among the Chinese representing different provincial interests clamoring for recognition in the new government. Each province may be expected to have its candidate for president of the proposed republic and, due to racial differences, feuds

may easily be initiated, a thousand times worse in consequences than the recent revolution. The selection of a Chinese for the head of the government, it is believed by many, would result in the ultimate loss of all the dependencies. It is the selection of a head for the government to replace the Emperor forced to withdraw that threatens to disrupt China. If it were possible to select some outsider who represented no element of the Chinese empire, friction might be avoided. For the present Yuan Shih Kai is the only man that seems acceptable and so long as he holds the reins trouble may be averted. But what of the future? Who is there as successor to Yuan Shih Kai who would enjoy the confidence at present reposed in the Dictator?

Opinion is veering round in favor of a limited monarchy and, by the process of elimination, the conclusion is slowly being reached that the infant emperor, shorn of all his power and retaining only the form, seems the only head available who would serve the purpose if disruption, over or after the selection, is to be avoided.

The revolutionary leaders have been accorded the republic, indeed everything demanded has been acceded. If a Chinese be selected, there is the danger of secession even among the Chinese provinces, and there is almost the certainty that he would not be acceptable to the Manchus and the different dependencies, since they fear Chinese control as greatly as the Chinese feared Manchu control.

It is advanced by thoughtful Chinese that there is now nothing to fear from the infant emperor stripped of everything that made him appear a menace to Chinese constitutional rights. His selection would exclude possible dissension among the Chinese and retain the loyalty of the Manchus and the dependencies to the new government.

However, we believe the situation is safe for the present in the hands of Yuan Shih Kai, and with normal conditions restored the deliberations of the national assembly may be expected to be impassionate giving to all these important questions the consideration they demand, so that when the new constitutional government is launched, the probability of mutiny will be minimized. It is the integrity of empire with equitable measures of reform consistent with conditions, and the maintenance of law and order, with adequate protection for every race and creed during the process of organization of the new government for which the Dictatorship stands. It is for the national Convention to evolve a new government that will not only succeed the dictatorship but continue for all time enduring and fulfilling in larger measure the responsibilities that now fall in a precarious hour in China's history to her strong man, Yuan Shih Kai.

In the building of a republic along American lines the revolutionary leaders have overlooked the sharp contrast in conditions in the two countries at the respective periods of organization. The thirteen colonies were of one race. They were trained in the genius of representative government. There were no racial antagonism in the selection of George Washington. When congress convened the delegates were in sympathy with each other, speaking the same language, and inheriting no conflicting traditions. Upon this foundation the American republic has endured. The conditions under which it was founded were a guarantee of its success.

Those conditions do not exist in China. A republican government in China under present conditions has no precedent to follow except in the bovine South American republics, and in these latter the racial antagonisms do not seriously impede, rather the lack of training, temperament, and traditions. The most sanguine Chinese republican certainly does not desire to have China classed with Nicaragua, or Cuba. And China has something at stake, which was not true of those little American states. There is the largest empire in the world to hold together, to

keep from disintegrating. What all patriotic Chinese must consider first is "how are we going to hold this empire together, retain the confidence and loyalty of every Chinese whether of far away Tibet and Turkestan or of the province of Kwangtung, and guarantee to each and everyone his constitutional rights, protection for his life and property, and equality before the law?"

If a republic can accomplish this, well and good. If not, then a limited monarchy with a pernicious head whose selection will be made, not to represent any particular race or party but be acceptable as typical of an united empire, would seem the only way out.

Among the intelligent and serious expressions of opinion on the Chinese situation that we are privileged to quote at this juncture in support of the opinion that a limited monarchy rather than a republican government for China would be preferable at this time is that contained in a lengthy letter written by the famous constitutional reformer Kang Yu-Wei to the revolutionary leaders at Nanking previous to the abdication edict. Kang Yu-Wei was tutor to the late Emperor Kuan Hsu and was involved in the reform movement headed by the Emperor in 1898 when the late Empress Dowager effected her famous coup d'état. He has since remained in exile but continued a consistent advocate of constitutional reform. A copy unsigned but clearly identified by personal incidents and views was recently published in the *Sheung Po*, Hongkong, but so far as we know was not given publicity by the revolutionary leaders at Nanking. Lack of space makes it impossible to publish a translation of this lengthy historical letter in full, but we are enabled to reproduce a condensed translation covering its most important features as follows:

"I have heard that you are insisting upon the establishment of a republic in China. As a country belongs to the people, to select the most able and virtuous man to be its head is the principle of Confucius and also my long cherished desire. But there is a large problem, a solution of which has not up to this time been tested in China. The slightest mistake made would be sufficient to bring about the fall of our country. How can we use our country as an experimental station?

"I am not in favor of the Manchus. In fact there is no one having a deeper feeling of hatred against them than myself, when I recall the treatment I received in 1898. But I am a native of China. I have a share in its future destinies, and I cannot remain silent at this time, in view of what I have learned by experience during my long stay abroad for the last ten or fifteen years.

"When one reads the history of the American continents one will notice the prolonged disorder and anarchy accompanying every change of president in the Central and South America republics. The revolution waging in Mexico for many months past has not up to the present time come to an end. It is due to their geographical position as well as to the protection afforded by the Munro Doctrine that these countries though filled with internal trouble year after year are fortunate enough to be able to maintain their present status. Had they moved to Asia, they would have, long ago, become what Korea and Indo-China are today. Of all the republics in the Western Hemisphere only the United States is able to maintain peace and prosperity under a republican form of government, while other countries that have tried to follow her example have thrown themselves into a state of great confusion. This is due to the fact that the original American settlers were mostly pilgrims and had no desire to struggle for power. The population was not more than three million and self government had been well established during the colonial period. While the above was true of the American revolutionaries, in China we have a large population and an extensive territory. The customs and social traditions of the people are also different from the American settlers. So if we attempt to follow the example of the United States we are certain to suffer the same calamities suffered by the republics in Central and South America.

"There is no difference between a limited

monarchy and a republic, so far as the privileges of the people are concerned. In both there are a cabinet and a parliament and the duty and power of the premier corresponds to those of the president. All these, though under different names, are to act for the Emperor who is but the figure-head. Is it not better to keep a figure-head and have peace than to sacrifice many lives for the privilege of electing a president?

"We need not have one with great talent to be the figure-head for he would have nothing to do and no power. He would simply sit on the throne like the wooden idol in a temple. But he must possess a high social standing above the four hundred million people so as to prevent dissensions which would result in internal disorder and disruption of the country. There are two persons socially suitable for our selection—the Manchu Emperor and the direct descendant of our great sage, Confucius. If we selected the latter, we have no doubt, all the Chinese would be satisfied. But the people of Mongolia, Turkestan, and Tibet may not be satisfied with this choice. They would very likely form a nation under the Manchu Emperor and ask for foreign protection. Then, in exchange for an idol, we would lose a territory three times as large as the eighteen provinces. The price is too high and it is not worth while. Furthermore, Mongolia, Turkestan, and Tibet were conquered and given to the Chinese by the Manchus. Naturally they are more attached to the Manchus than to ourselves, and when we get rid of the Manchu Emperor, it would be impossible for us to retain them. If we are unable to keep them, other powers will secure control of them and introduce modern methods to develop their rich resources. The day would then not be distant when we would be surrounded by countries commanding a commercial and industrial supremacy over us.

"Under the nineteen constitutional regulations the Manchu throne has sacrificed everything except the Imperial title. All the executive and legislative powers are invested in the parliament. The power of drawing up and amending the constitution belongs to the parliament. The Emperor simply promulgates its decisions and cannot either dissolve or veto them. Theoretically there is no Emperor and practically the government is republican in form. You want to establish a republic. You have succeeded. The Manchus are no longer eligible to be the administrative heads of the government and they have been already replaced by Chinese in such positions. You want to establish self-government for the Chinese people. You have succeeded also in this. You have secured all you want. What you want now is the restoration of public peace and order throughout the country. If you do not stop wanting but continue agitating for the unnecessary you will invite foreign intervention and partition of our country.

"The purpose of the revolution was to save our country; to relieve our own people; to overthrow the Manchus, and establish a republic. Since the abdication of the Prince Regent and the appointment of Yuan Shih Kai to the premiership, the Manchu dynasty has been practically overthrown. Although Yuan does not bear the title of Emperor, in fact, he is the Emperor, for he acts in the place of the Prince Regent, consequently he acts in place of the Emperor. If the North and the South are still going to continue the war, it would be war between the parties of Yuan and the revolutionary leaders, not between the Chinese and the Manchus. This would not serve to save the country but rather to invite foreign intervention and hasten partition; not to relieve the people, but to destroy their subsistence and kill them. Were these your original purposes when you started the revolution?

"Throughout the country commerce and trade are at a standstill. Agriculture and industries are completely destroyed. In the interior money has disappeared; financial resources are exhausted, and the masses are unable to find means to sustain their lives. The wealthy flee with their valuables to the foreign concessions. The poor, unable to bear this acute suffering, begin to rob and plunder, and this is directly responsible for the daily increase of riotous

movements in every province. The good and the bad, the young and the old, all are suffering without discrimination. At present there are 26,000,000 persons exposed to death by starvation in the provinces bordering on the Yang-tse. This number would be increased many times if the whole country were taken into consideration. China already bears a debt of \$1,500,000,000. If war be waged continuously, the resources of the country would be entirely destroyed, and the young men, if they do not die on the battlefield, will surely die of hunger. The whole country would be thus converted into a desert. What can you do then even if you succeed in securing complete control in your own way?

"So far the foreign powers remain neutral, but you must not think that they will remain so forever. They will not allow their immense interests to suffer continued loss or permit damages to the lives and property of their nationals. Once they intervene it means partition of our country. What means can you devise to stop them? After all, the best solution of the present problem is to retain the Manchu idol and pay him a certain amount of incense money yearly to support him. We do not sustain any loss by so doing. On the contrary we can stop the present disorders; save the country from disruption, and retain the Manchu dependencies under our control. If you still object to the use of Manchu names, you can change the name of the dynasty to 'Ching Hwa' or 'Chung Kuo' and date our country from either the 'Hwangti' or Confucius and disregard the names Hsuan-tung and Ta Ching forever. The Manchus would be perfectly willing to adopt whatever names you choose. But the dragon flag should not be superseded. It is the Chinese flag and does not represent the Manchus. It was originally used by the dynasties of Liang and Chow, and the yellow dragon flag has existed in China for three thousand years.

"I take the liberty of addressing you this letter, because I hear you are sincere in your purpose to fight for the welfare of our people and our country. If you are simply looking for your own personal advancement and benefit, then I confess that what I have written is all wrong."

FILIPINO LABOR AND BUILDING CONSTRUCTION

The many departments of activity in which the Filipino has been successfully employed denotes a remarkable adaptability on his part to conform to western methods under proper supervision as compared with any other laborer in the east. In the Philippines during the last ten years millions were expended annually by the government and by private interests in engineering construction, and contractors engaged in this work have to rely almost entirely upon Filipino labor. That they have found it entirely satisfactory and preferable to the Japanese or Chinese in that climate is admitted by all the large contractors who have been continually active and have maintained permanent organizations. Among those who have long since passed the experimental stage in treating with Filipino labor is Mr. H. Thurber, General Manager of the Manila Construction Co., who has been active for twelve years in directing large undertakings in engineering construction. This Company's average annual work runs in value from P600,000 to P1,000,000. Among some of its larger contracts were the construction of the Philippine General Hospital representing an outlay of P600,000; the New Manila Reservoir, P500,000; The Capas-O'Donnell road P360,000; The Tarlac Railway, P175,000; The Medical School, P150,000; The Derham Warehouse P175,000 and The Luneta Curtain wall P175,000. In all these varied kinds of construction Filipino labor was utilized exclusively under American supervision. General Manager Thurber speaking of his experience made the following statement:

"I have been continuously in the contracting business since 1900. I have experimented with every class of Oriental labor including Japanese and Chinese, and my experience fully justifies me in saying that the Filipino is generally the

(Continued on page 294.)

REFORM & PROGRESS IN KOREA

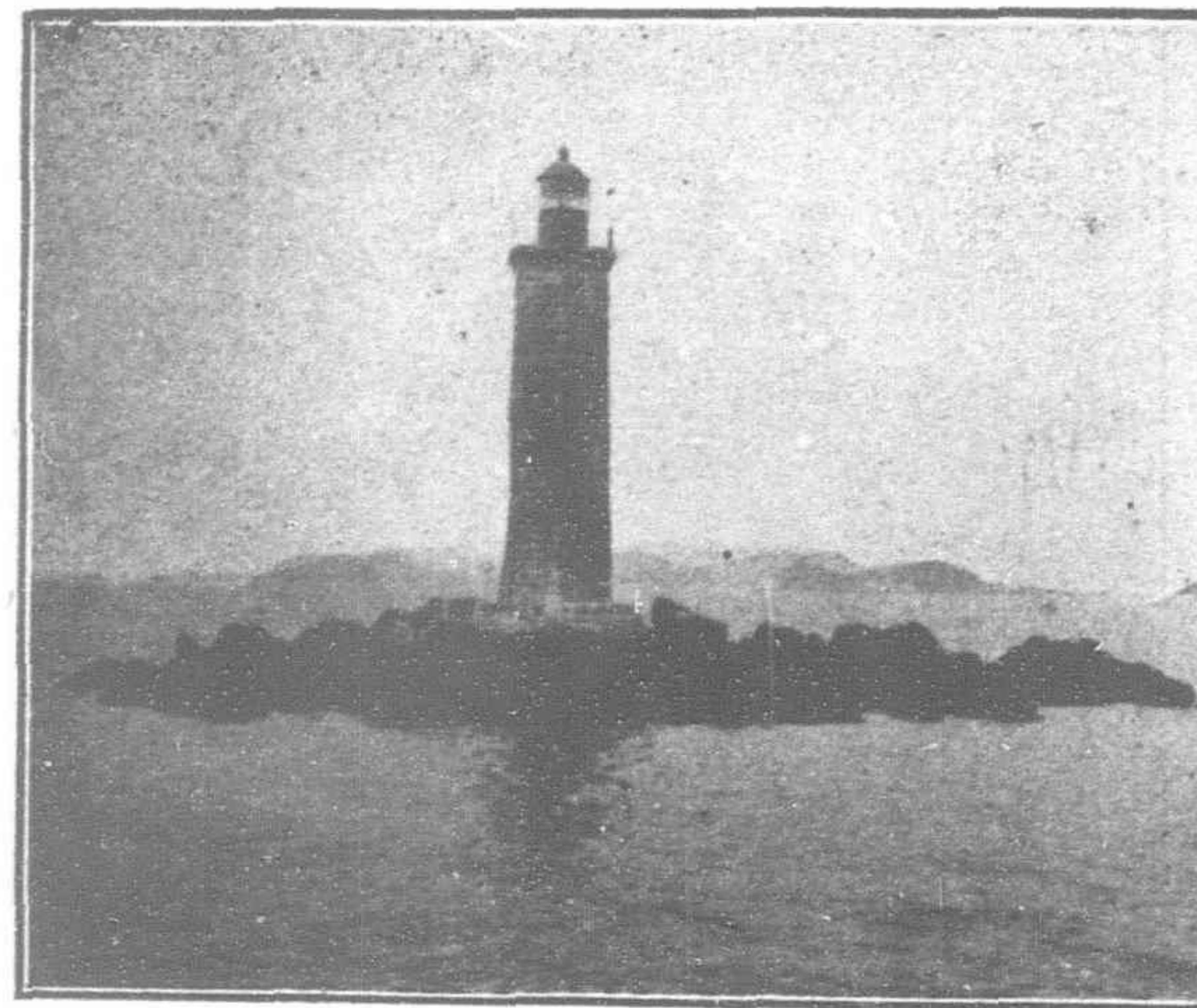
(Continued from page 284.)

Of the seeds distributed there were oats, clover, rice, wheat, beans, vegetables, sugar beet, cane sugar, tobacco, cotton, flax, besides seedling of fruit trees, garden trees, and vegetables.

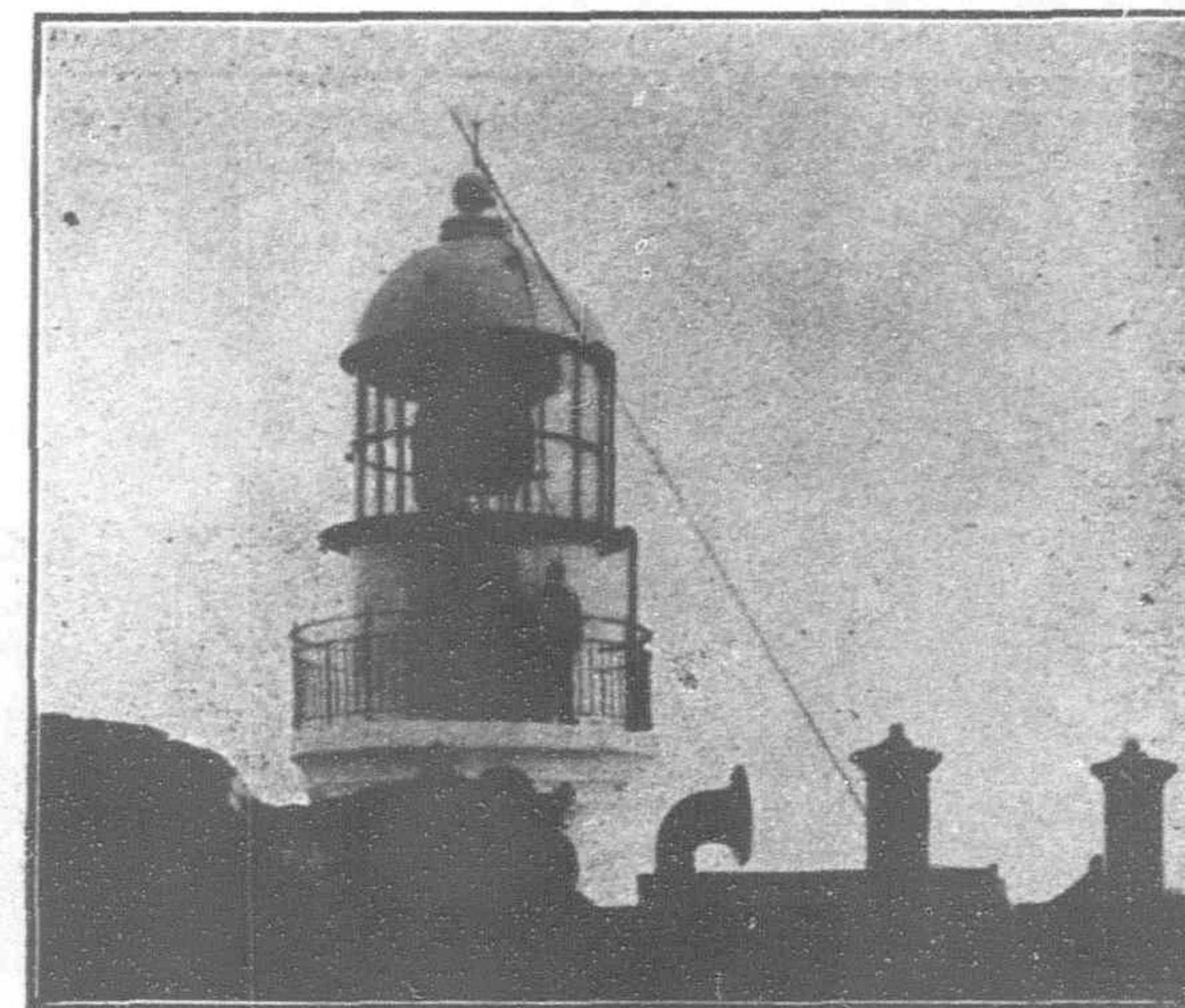
plies a population of 234,000 and is not included in the above estimates. The extensive systems in Chemulpo, Fusan, Mukpo, and Pying-yang were completed the latter part of 1910. Provision for the supply of pure water is being undertaken by the municipalities throughout the peninsula, and great progress is being made in securing the co-operation of the inhabitants. Modern hos-

district to the value of more than \$14,000,000. Its report for the year ended June 30, 1910, gives the following items: Total receipts, \$1,434,494; operating costs, \$780,258; operating profit, \$654,236; to reserve, \$30,559; net receipts \$623,677.

The Seoul Mining Co., incorporated under the laws of Connecticut and operating in Suan district, in its report for 13 months ended De-



BEACON ON WHITE ROCK



LIGHT AND FOG SIGNAL ON BAMBOO ISLAND

To promote sericulture mulberry seedling gardens have been established and from these, silkworm eggs, young trees and silk thread spinning machines have been distributed. Liberal subsidies have been made to various sericultural associations, active in experimentation.

Another industry receiving especial attention in Korea is upland cotton growing. American seeds were introduced in 1907 and within three years the area under cultivation increased from 150 acres to 1,000 acres with an output of 800,000 pounds. This industry seems one of the most promising in Korea due to the adaptability of the climate of the southern part of the peninsula.

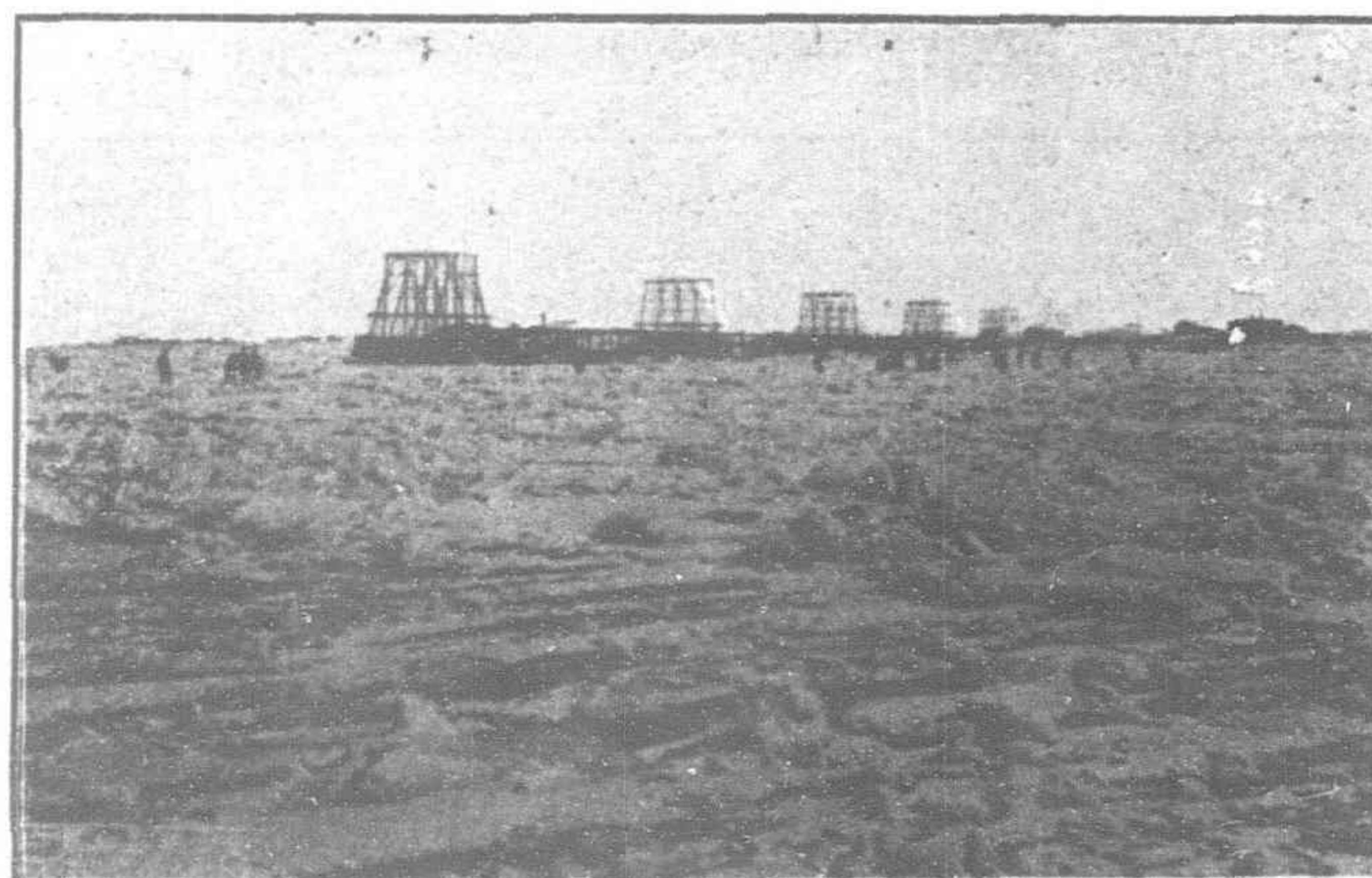
pitals have been built in every large center and directed by the government, all modernly equipped and having laboratories for investigation and the manufacture of vaccine and serum. As an evidence of activity in vaccination over half a million subjects are treated annually.

Industrial training is rapidly becoming the most important feature of educational work in Chosen. While the greater proportion of annual expenditure is devoted to common schools, each year is marked by an increase in schools devoted to commerce, agriculture, forestry. Most of these schools are adjuncts to the different agricultural, horticultural and sericultural sta-

mber 31, 1910, gives the following figures: Total receipts, \$230,216; costs of operation, etc., \$70,830; royalties and taxes, \$22,238; dividends, \$40,000; unappropriated balance, \$97,148.

Among other American gold-mining ventures may be mentioned the Korean Exploration Co., in Chihsan district, and the concession to Morris & McGary, in Yeng Byen district.

Other Minerals—Marine Products.—The concession at Kapsan held by the Collbran-Bostwick Development Co., covers an area of about 50 by 88 miles. Great attention is there being given to the extensive deposits of copper ore and promising indications are also reported of gold placers. This enterprise has not yet



SECTIONS OF CONSTRUCTION

The mining industry is one of its most important sources of wealth in the production of gold, copper, graphite, iron, coal, silver. The annual output of all minerals average in value from yen 4,000,000 to yen 5,000,000 of which one American company, the Oriental Consolidated which has an average output of gold of about yen 3,000,000 annually. The mining operations are conducted principally by Japanese Koreans, American, English, German and Italian.

In sanitation and effective campaigns against epidemics the Korean authorities have made remarkable progress. Improved water supply for all the large centers of population involving some 8,000,000 yen is one of the most important features of this program. The first system was installed in Seoul by a British Syndicate and opened for service in 1908. This system sup-

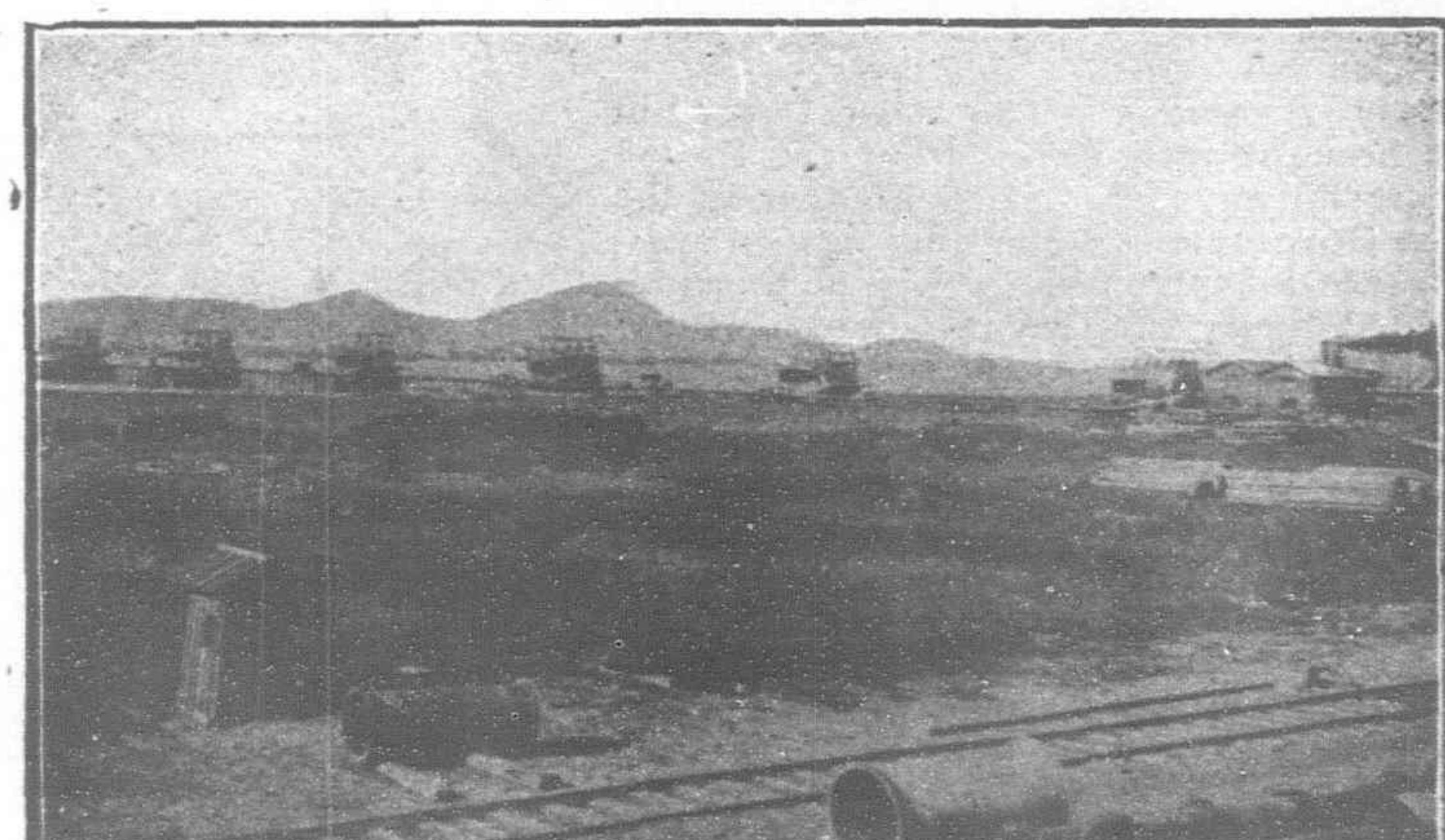
tions and the number of students in training at the present time does not exceed 350.

KOREA.

[FROM CONSUL GENERAL GEORGE H. SCIDMORE, SEOUL.]

Korean Gold Mines.—Among the most productive and promising industries of Korea are its gold mines, and especially those controlled by American citizens. The geological survey of the country is far from complete and clandestine placer mining is prevalent. Exact statistics under this head are therefore not to be had except in connection with mines operated by foreigners or the Japanese authorities.

The Oriental Consolidated Mining Co., an American enterprise, has, since its beginning of operations under concession from the Korean Government, produced gold ore from the Unsan



ON VALU BRIDGE

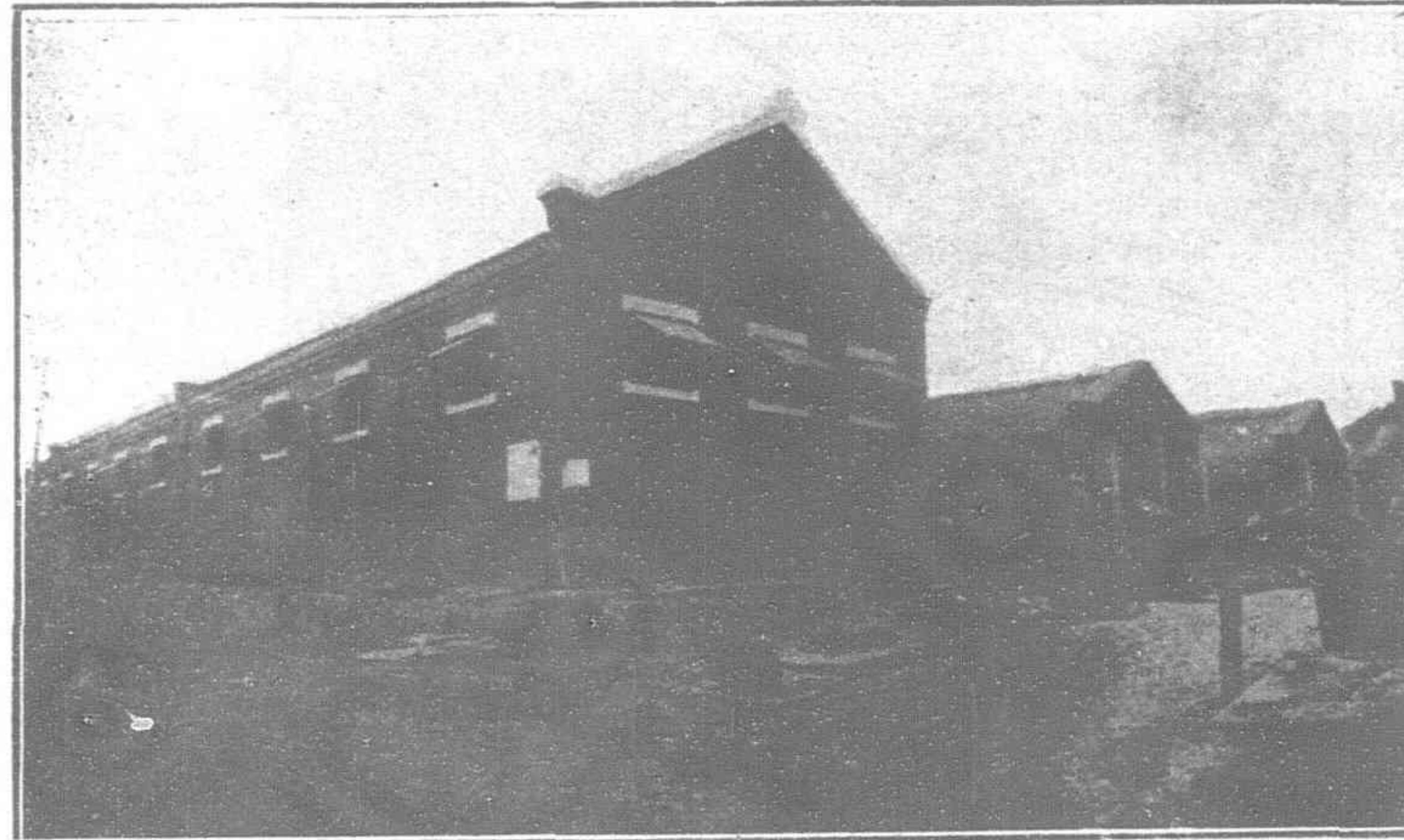
progressed much beyond prospecting and developing.

Iron mines are in operation at Anak, Eunyul, and Chairyong. Their total output during 1910 is reported as 129,193 tons, valued at \$193,610, while the exports of iron ore were valued at \$169,252, almost all of which went to Japan for the use of its Government iron foundry at Yedamitsu.

The only coal deposits of importance thus far worked in Korea are located near Pingyang. They are anthracite and are monopolized for the use of the Japanese Navy in the manufacture of briquets at Tokuyama, Japan. During 1910 their output is reported as 78,835 tons.

Numerous deposits of graphite have been found and for 1910 the value of exports therefrom was \$56,874, of which \$55,729 worth went to Japan.

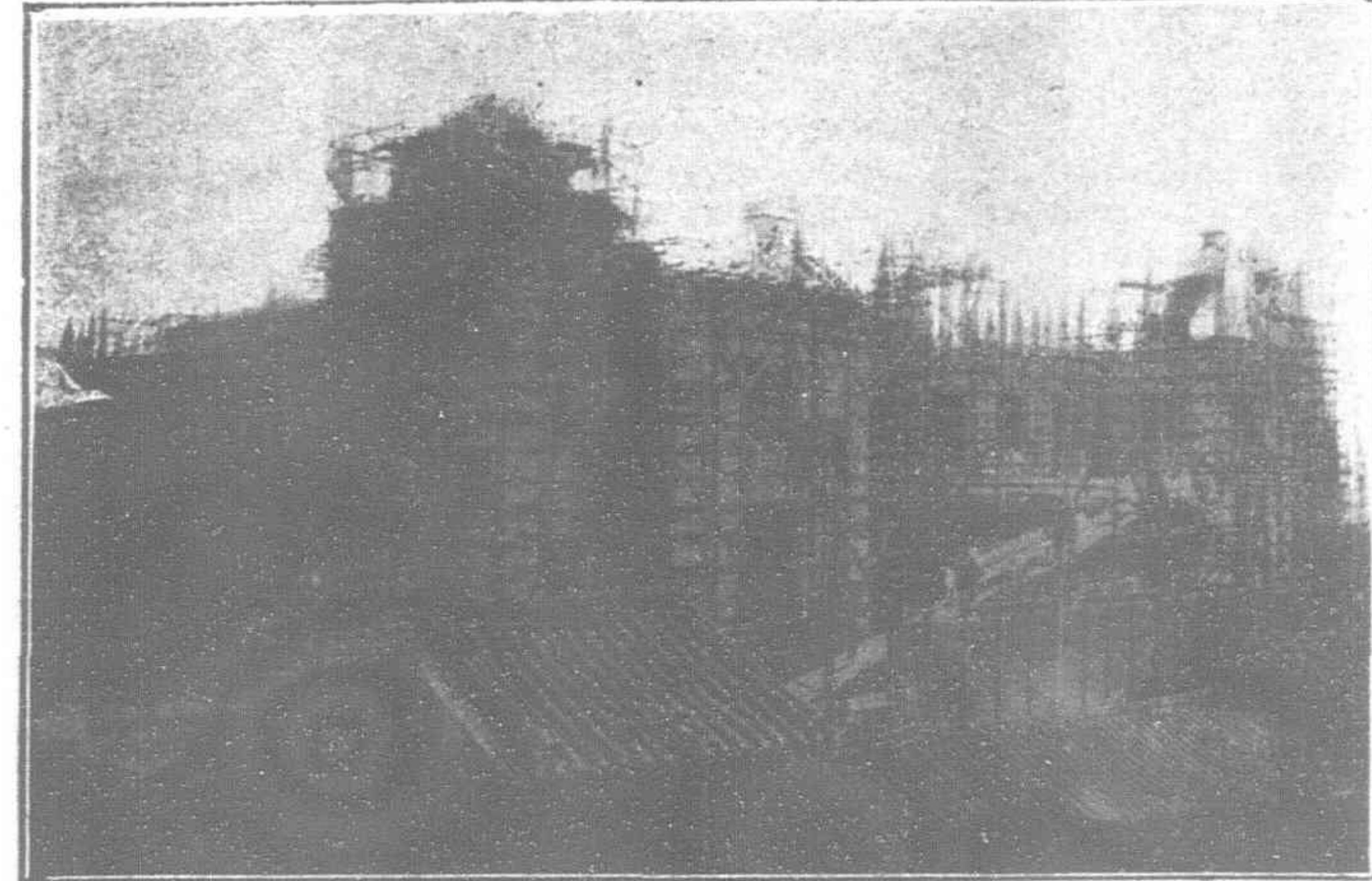
The coasts of Korea and outlying waters abound in cod, sardines, lobsters, bream, sharks, beche de mer, herring, ray, sea-ears, mackerel, yellow tail, whale, and seaweed, but primitive and defective methods of capture and frail boats are still in use. The Japanese authorities are taking energetic measures to improve this promising source of income. The annual value of Korean fisheries is estimated at about \$3,984,000.



NEW MARKET HOUSES CONSTRUCTED BY THE HAN-YANG BANK

it a permanent one. In consequence, no reconstruction work is expected to be needed. On the other hand, the construction expenses are much higher than those for the Honam Railway, being about 75,000 yen (\$37,350) per mile, while those for the latter are only about 25,000 yen (\$12,450) for a similar distance.

The Honam line.—On the section between Taichon and Yongsan, a distance of 20 miles, the embankments and laying of the track are



BANK OF KOREA IN COURSE OF CONSTRUCTION

Trade with the United States.—In any comment upon the trade between the United States and Korea what appears to be of chief value is the conviction, derived from observing the trend of business in this part of the Orient, that the American products most likely to secure future good markets here are machinery and tools. From these categories should be excluded agricultural machinery and implements, for which there is no prospect whatever of a paying demand. The conservatism of the farmers and the diminutive areas of fields, as in Japan, are the principal reasons for this.

In the matter of railway supplies, which are purchased principally by the Japanese Government, American manufacturers are already in a strong position. The customs returns show that in 1910 the United States ranked first only in supplying Korea's imports of kerosene, flour, salted fish, rails, tin, and nails.

Railway Extension.—The most important articles brought into Korea from the United States are railway supplies, purchased by the Japanese Government. The lines now in operation measure 675 miles, of which 34 miles were added during the year 1910 between Pingyang and Chinnampo. Concerning projected work, a recent issue of the Seoul Press, a semi-official organ, gives the following statement:

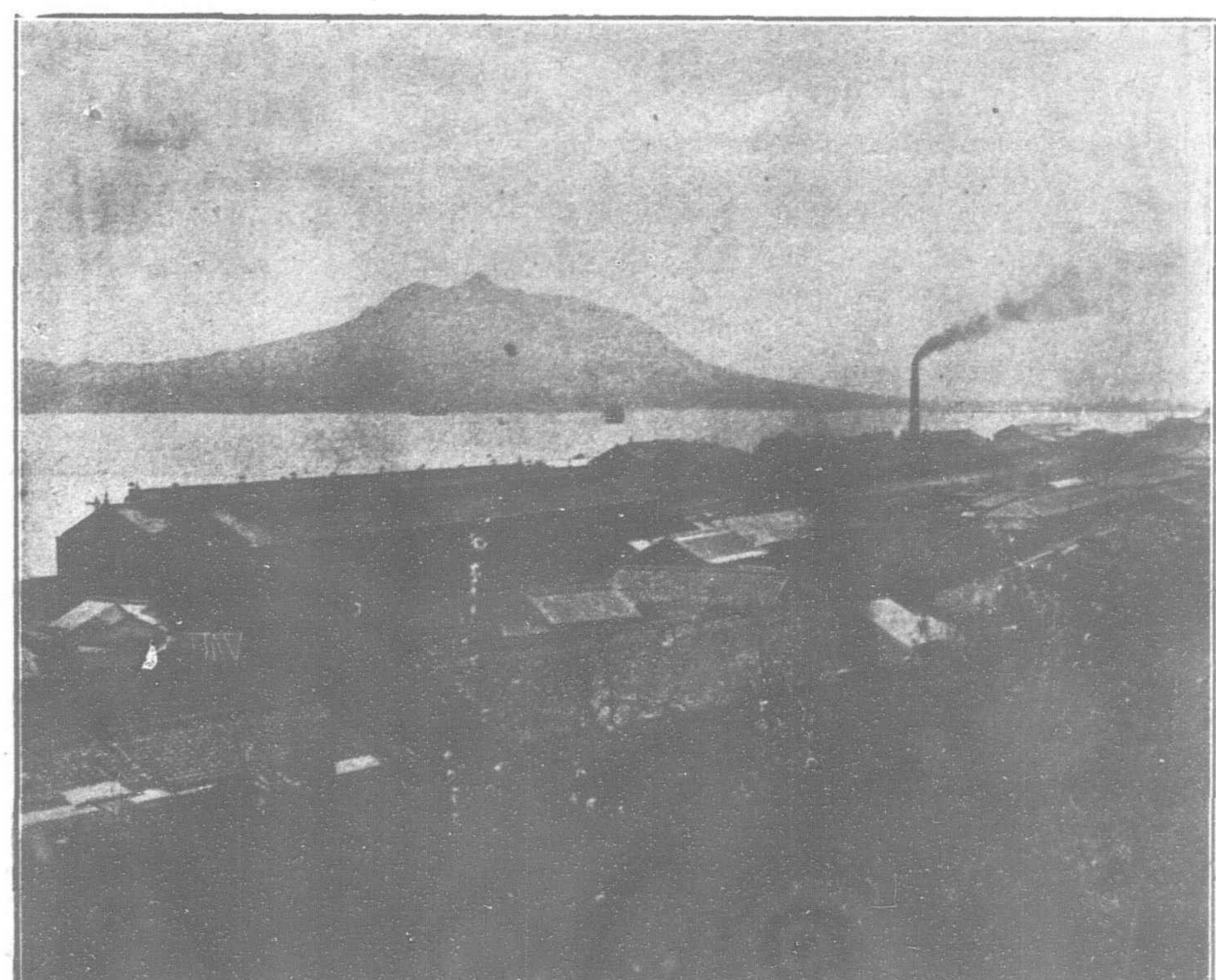
The former 11 years' program has been shortened to four years, and the authorities concerned are now putting forth every effort to complete the work within the fixed time.

Seoul Wonsan line.—Work on the Seoul Wonsan line has made great progress. The construction work on the 20 mile section between Yongsan and Euichongpu was to be completed by September, 1911. By the middle of October it will be open to public traffic, with five stations, at Hankang, Tukto, Chongyangli, Chang-dong, and Euichongpu. Work has also been commenced at Wonsan. Surveying of the route has been progressing and a construction office established at Wonsan. The 30-mile section between Wonsan and Sinyongchiwon is expected to be completed and open to traffic by March, 1913, and that between Euichongpu and Pyongkang, extending over 55 miles, will also be finished at the same time. There will then be only the 35-mile section between Pyongkang and Sinyongchiwon still unfinished. This portion is, however, the most difficult section to work, as it will be laid over a mountainous locality, with rapid streams running through it. In consequence, many bridges and tunnels must be built before the railway is laid. This section will be completed by the autumn of 1914. It may be added that the work on this line is being undertaken with a view to making

completed. Construction cars are already running on it. The 37-mile section between Taichon and Kangkyong is expected to be completed by October, 1911, and the opening ceremony will be celebrated on the Emperor's birthday, November 3. Four stations, Kasuwon, Tuksi, Yongsan, and Lonsan, will be established. The section from Kangkyong to Kunsan is to be finished during March, 1912, which will result in actually connecting Seoul and Kunsan by railroad. The construction work on the line is to be begun simultaneously from both termini. The section between Mokpo and Laju, a distance of 35 miles, and that between Li-li and Chyongeup near Taichon will be open to traffic during March, 1913. The 45-mile section between Chyongeup and Laju, which is the last section of the Honam line, will be finished in March, 1914.

Reconstruction of Seoul-Wiju line.—The reconstruction of the Seoul-Wiju line, which was commenced in 1909, has since made much progress. The greater part of the work has already been completed; tunneling in the section between Ko-song and Hanpo, a distance of 23 miles, and the reconstruction work between Yang-chai-k and Tong-im, 21 miles, are all that remain unfinished. The whole line will be completed by July, 1912. Then the gradient

will be less than 1 per cent throughout the line, which will allow the use of large locomotives of 100 tons now employed on the Seoul-Fusan route. The time required for covering the Seoul-Wiju line has already been shortened by two hours and a saving of two hours more will be effected upon the completion of the reconstruction of the line. The bridging of the Yalu, it is expected, will be completed before the end of October, 1911, if no great hindrances to the work arise during the rainy season. If the Antung-Mukden line be finished and open to traffic by November 3, as the South Manchuria Railway Co. declares, the linking of Chosen with Manchuria by railways of standard gauge will be realized, and Changchun and Fusan will be connected by through trains. The line will then become practically a highway of the world.



IMPERIAL RAILWAY WORKS AT FUSAN

THE PHILIPPINE EXPOSITION AND CARNIVAL

Manila is greatly enthused, and with reason, at the success that attended the exposition and carnival held February 3-12. It is estimated that during the ten days, two of which afforded little comfort from continual rains that prevailed, over half a million visitors thronged the many departments of the exposition and the paid admissions into the Carnival aggregated about 250,000 at least. This has been the result of four years of serious effort, on the part of the Philippine Carnival Association, that body being responsible for the initial movement to develop an exposition feature in conjunction with the annual carnival. Every year this desirable attraction increased in volume until it was decided last year that the Philip-

Bureau of Science, Bureau of Public Works, and indeed every bureau of the insular government was represented. Of all these there were no more attractive exhibit than that of the Bureau of Education. The result of well directed effort in the establishment of industrial schools, not only for the encouragement of household industries but in the different crafts, was splendidly demonstrated in the beautiful laces, embroidery, etc., on the one hand, and the baskets, hats, furniture, woodwork of all descriptions, etc., all of which secured a ready sale. It is estimated that in sales alone this department could have been trebled had the stock been sufficiently extensive. It demonstrated clearly to the Filipinos that there is no limit to

represented. Words fail to express the comprehensiveness of these exhibits. They included rice, tobacco, hemp, sugar, corn, rubber, copra, native cloths of a hundred different kinds all hand woven, laces, embroideries, baskets, hats, exhibitions of weaving, native trades, and thousands of items covering gums, spices, cereals, resins, etc., all expressive of the latent wealth of the islands to be developed by the application of modern methods in almost every line where at present limited effort is very crudely engaged.

THE MACHINERY EXHIBITS

Perhaps no section of the exposition proved of greater educational value and served to



Squires, Bingham & Co.

VIEW OF THE FRANK L. STRONG EXHIBIT, MACHINERY HALL, PHILIPPINE EXPOSITION

pine Exposition should be organized and directed as a separate entity patronized by the insular government and that the admission to it should be free. The plans also provided that it should be held on the same dates and in conjunction with the Philippine Carnival. Cooperation between the two bodies was ideal, and side by side on Wallace Field one of the most comprehensive exhibition of Philippine products and of the industry of the people expressed insular potentiality while on the other hand a program expressive of capacity of healthy enjoyment was carried out most successfully and with an enthusiasm characteristic of the people who participated.

THE PHILIPPINE EXPOSITION.

The space occupied by the Philippine Exposition covered an area one-half a kilometer in length by a quarter of a kilometer in width. The buildings in which the exhibits were displayed provided ample space for the crowds that thronged them day and night. The division into groups included a building for the Bureau of Printing, then a large building on the west frontage devoted to the extensive exhibit of the Bureau of Education, Bureau of Forestry, Bureau of Agriculture, Bureau of Internal Revenue, Bureau of Health, Bureau of Lands,

the demand for these products, and to the visitor it established a firm conviction that if the policy of the American government were responsible for such remarkably early results, the possibilities of the islands and their peoples were unlimited.

Demonstrations of the work of the Bureaus of Health and Science in the battle against disease were additional educational factors in this building, while the Division of Mines, the Forestry Bureau, and the Bureau of Lands furnished exhibits and demonstrations of insular possibilities and of opportunities for the application of money and enterprise in the development of the archipelago's latent wealth.

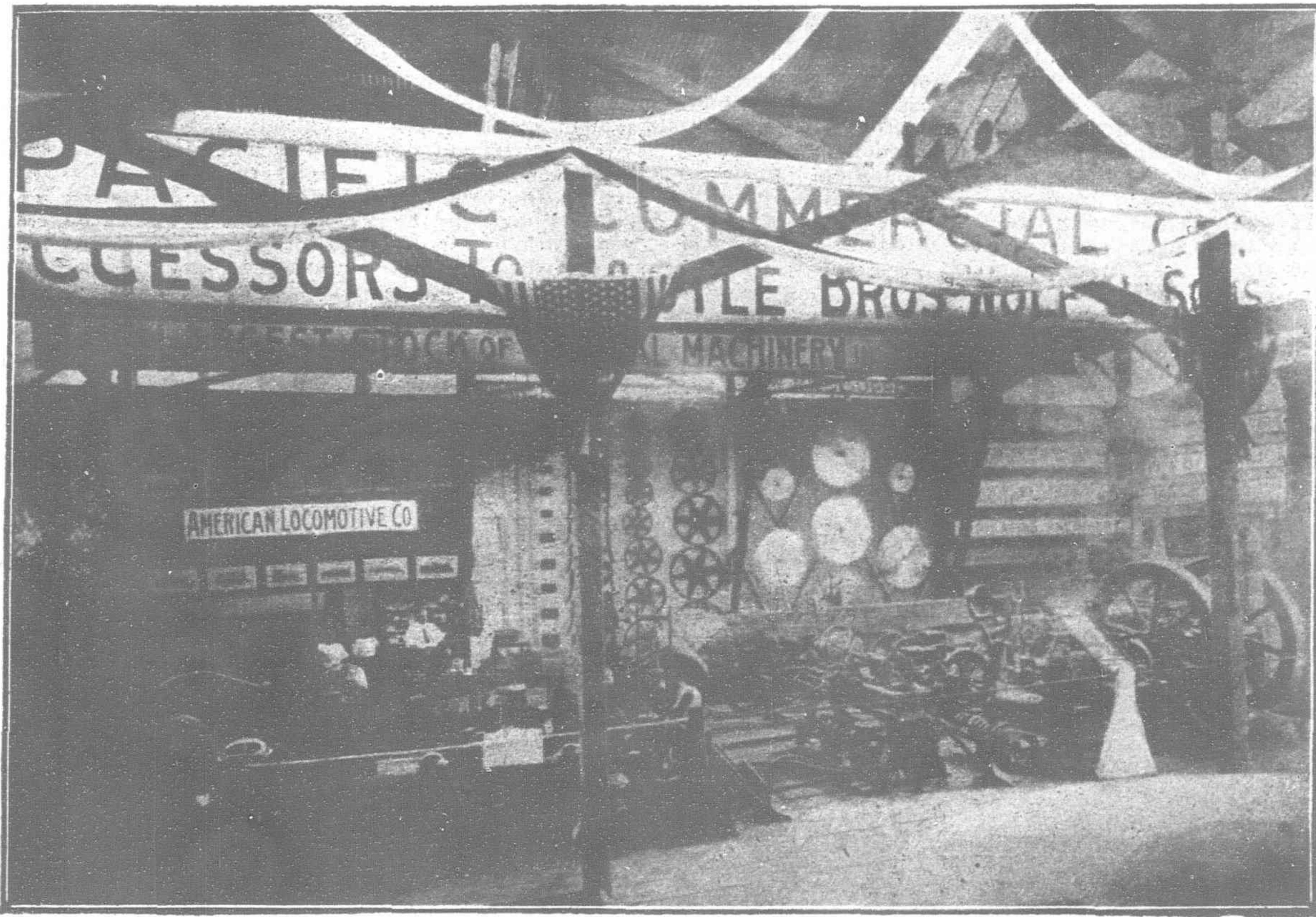
In large spacious buildings covering the greater portion of the exhibition grounds were the provincial exhibits. There thirty buildings in all representing thirty different provinces, each setting forth the fruits of industry in tropical products and manufactured goods characteristic of the customs of each different race. There was the mountain tribesman in his G-string and the Moro in his turban, all eagerly competing for first place against the more advanced districts. With the exception of two provinces, one of which was the province of Rizal immediately at Manila's door, every section and race in the Philippines might be said to have been

attract greater measure of continuous attention than Machinery Hall where the leading machinery houses of Manila occupied large spaces and showed an enterprise in keeping with energetic spirit of the Manila businessman. Electric and steam power was provided throughout and every machine that could be operated was running for purposes of demonstration from early morning to midnight. The adaptability of agricultural machinery throughout all the phases of tropical farming was fully demonstrated at the different sections for the benefit of the Filipino farmer while engines, pumps, woodworking machinery, motors, electrical appliances, railway, mining and manufacturing supplies of the latest pattern and type were there for the inspection of the hundreds of thousands of visitors. Literature of all kinds of mechanical compliances, catalogs, etc., were scattered broadcast throughout the archipelago and when this knowledge is disseminated, a number of machinery houses in Manila and the names of many foreign and American manufacturers will have become household words from the peaks of Northern Luzon to the coral reefs of the Sulu seas. The display was magnificent. One encouraging feature that must appeal to

the engineering trade in the islands was the eagerness displayed by every Filipino whether old or young in seeking knowledge of the purpose of every piece of machinery.

in operation and covered almost every line of machinery that could be grouped in the space occupied. Among the manufacturers represented by Frank L. Strong are leading

company was represented in Mr. Strong's exhibit by a full line of household utensils, electrically heated or driven. These included stoves, irons, toasters, coffee percolators, hot



Squires, Bingham & Co.

VIEW OF THE EXHIBIT OF THE PACIFIC COMMERCIAL CO. IN MACHINERY HALL, PHILIPPINE EXPOSITION

FRANK L. STRONG, MANILA.
This leading machinery house was prominently located near the center of Machinery Hall. The greater part of the exhibit was

firms in the United States that have been doing successful pioneer work in the islands through this firm.

The General Electric Co., Schenectady.—This

water heater, cigar lighters, ice cream freezers, fireless cookers, etc. A series of Mazda metallic filament lamps were displayed effectively in groups. Then there were demonstrations



Squires, Bingham & Co.

VIMW OF THE MILTON E. SPRINGER CO.'S EXHIBIT IN MACHINERY HALL, PHILIPPINE EXPOSITION

of electric drills, fans, buffing and sewing machines with half h.p. and 3 h.p. motors. A 4 k.w. generating set direct-connected with steam engine and a 7 k.w. generator belt driven were in operation and supplying light and power for the Strong exhibit.

The Ames Iron Works, Oswego, N.Y.—Among this firm manufactures, were exhibited one 15 h.p. vim steam engine in operation while several boilers and engines were included.

The York Manufacturing Co., York, Penn.—This large manufacturer of refrigerating machinery added an interesting feature to the Strong exhibit in the form of a 1000 pound ice plant in operation. One artistic feature was the display of cakes of ice in which flowers were frozen and illuminated with electric lights. The beautiful effect was the subject of much comment.

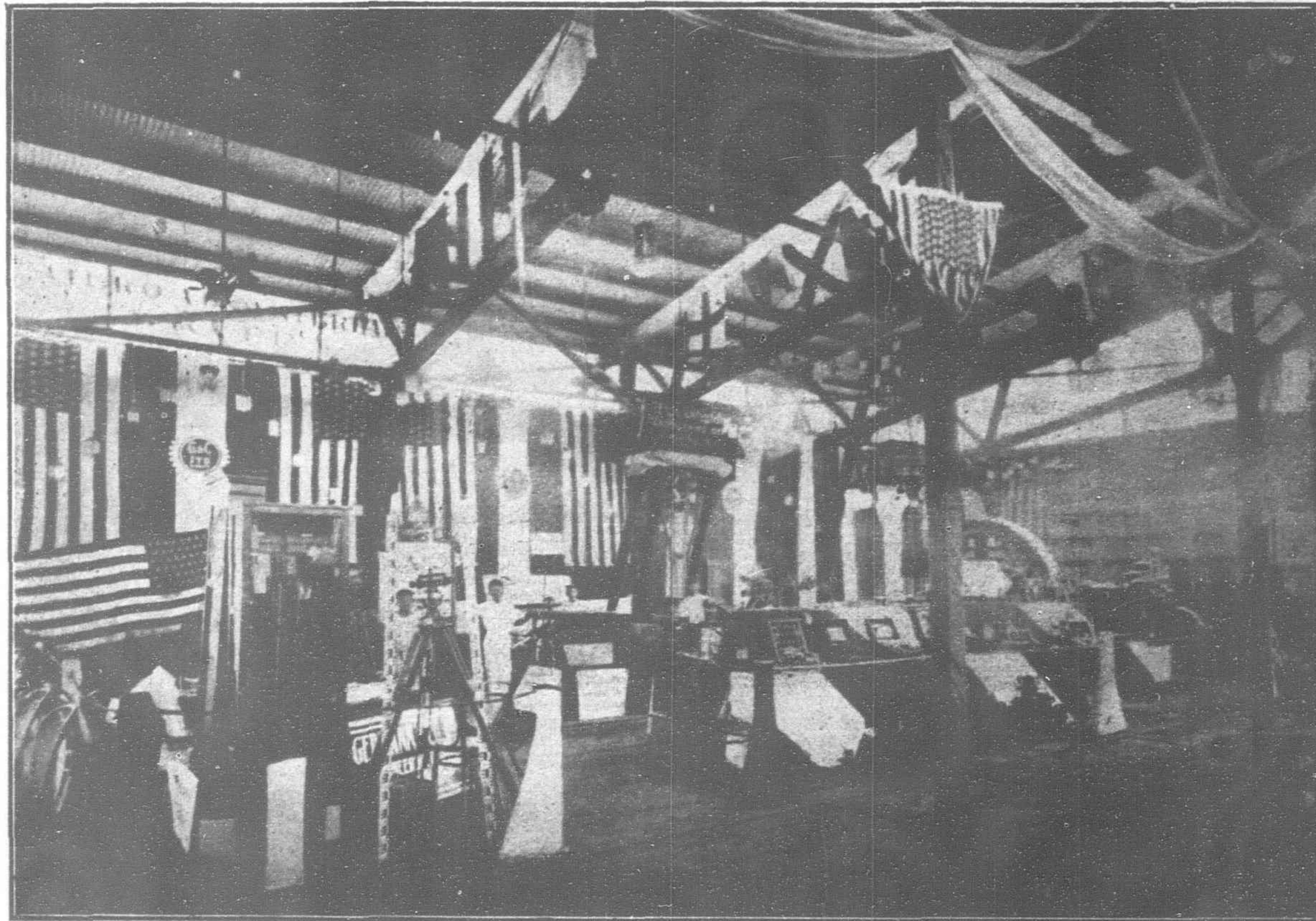
outlet of the blower. The air current acts in a manner not unlike that of a rapidly moving train, creating about it an intense suction toward itself. This is indicated by the fact that if smoke is blown toward the air current, and at a distance not too great from it, the smoke will be sucked into the strength of the current. Thus is the ball gotten into the current. Now, the distance at which the ball will stand from the blower outlet depends upon the intensity with which the air hits the surface of the ball, and the weight of the ball itself. By changing the speed of the blower, the ball will stand close or farther off, as the speed is slow or fast.

Remington Oil Engine Co., Stamford, Connecticut.—This exhibit includes one each 6 h.p., 15 h.p. stationary and one each 7 h.p. and 17 h.p. marine type kerosene engines. These engines are having an extensive sale in the Philippine Islands due to their adaptability, simplicity and

dandy were given a prominent place in the booth. These panels were delivered at the close of the carnival to the Bureau of Forestry with the compliments of Messrs. E. C. Atkins & Co.

The Gould's Manufacturing Co.—Not only in connection with the Strong exhibit but throughout Machinery Hall Gould's pumps were everywhere in evidence. Perhaps no pump has found more extensive and varied use than in the Philippines.

Generally, in connection with the F. L. Strong exhibit the manufacturers represented are to be congratulated on the material set forth as all the machinery exhibited were sent especially for the Philippine Exposition, complete descriptive literature in English and Spanish being freely distributed. The space occupied was 30×80 feet and telephone connection was established with the central city exchange.



Squires, Bingham & Co.

VIEW OF THE MACHINERY EXHIBIT OF MESSRS. GERMANN & CO. AT THE PHILIPPINE EXPOSITION

The Bredford Belting Co., Cincinnati.—This company was represented by a sample of their celebrated waterproof leather belting. This belt has been on exhibition at all the leading state fairs and expositions for the last four years. Each time exhibited it was continually in operation running through water and upon examination it demonstrated that it had not lost its waterproof quality.

The Chicago Pneumatic Tool Co., Chicago, Ill.—The exhibits of this Company included a complete line of pneumatic tools, riveting and caulking hammers, rivet busters, pneumatic and drills of all kinds.

Messrs. J. A. Fay and Egan Co., Cincinnati.—Among the features of this company's exhibit was a No. 155 scroll saw and bench hand planer adapted to tropical needs.

The American Blower Co., Detroit, Michigan.—This exhibit, which included one 1000 style discharge blower, one No. 40 discharge type E exhauster, one No. 5 discharge type V exhaust fan, one No. 12 Detroit return steam trap and one No. 4 sorocco fan, all in operation, was the center of general interest, especially the sorocco fan in the demonstration of which a ball suspended in the air was kept in the air by the force of the fan at an angle of 45° and appears to demonstrate complete suspension of the laws of gravity.

The suspension results from the action of the air current flowing with great velocity from the

low cost of fuel consumption guaranteed by the company to the effect that the engine will not consume over one-tenth of a gallon of kerosene per h.p. per hr. making it attractive to provincial purchasers.

The Crescent Machine Co., Leetonia.—This company makes a specialty of woodworking machinery. On exhibition here were a No. 2 saw table with boring attachment, a 24" single surfer and planer, a 26" combination bandsaw, a 12" hand jointer round, safety head, and a 24" variable single feed surfer, planer and matcher.

American Steam Pump Co., Battlecreek, Mich.—This exhibit included a complete set of their celebrated simplex water feed pumps.

A. J. Morse & Sons, Boston, Mass.—This widely recognized manufacturing firm makes a specialty of diving apparatus of all kinds. In the Strong booth there were on exhibition one complete diving outfit with hand power pump, and one complete pearl diving outfit run by kerosene engine. One special feature of the latter diving set was its equipment with electric light and telephone connections so that the operator may communicate with the surface at any period during submersion. This kind of diving set has been adopted by the United States Navy.

E. C. Atkins & Co., Indianapolis, Ind.—Two beautiful panels displaying complete sets of the celebrated silver steel saws of this com-

THE PACIFIC COMMERCIAL CO., SUCCESSORS TO MESSRS. CASTLE BROS., WOLF & SONS, MANILA

The Pacific Commercial Co.'s booth was another of the special features of Machinery Hall. In it were effectively displayed all kinds of agricultural and manufacturing machinery, with a large percentage of it in operation. It was splendidly illuminated and the arrangement of the exhibit attractive. The following were some of the exhibits made:

The Remington Ice Machine Co., Wilmington, Del.—This company had in operation a 600 lb ice machine with power furnished by a 4 h.p. engine of their own manufacture.

Fairbanks, Morse & Co., Chicago, Ill.—Included in this company's exhibit were one 40 h.p. and one 6 h.p. kerosene engine. There were two 4 h.p. centrifugal pumps in operation having a capacity of from 2,000 to 2400 gals. per minute, also one gasoline marine engine and the famous Fairbanks windmill equipment.

Ingersoll-Rand & Co.—This company's exhibit comprised air drills, caulking chisels, rock drills, and three kinds of Rand pumps.

The American Sawmill Machinery Co., Hackettstown, N.J.—One small circular saw mounted on carriage track and a planer friction drive tongue and grove combined.

American Road Manufacturing Co., Philadelphia.—This company exhibited a rock crusher complete with screens.

Ransome Concrete Machine Co., Dunellen, N.J.—This firm's concrete mixer having a capacity of 20 meters an hour was on exhibition.

Manning, Maxwell & Moore, Worcester, Mass.—Among this company's exhibit was a Reed machine lathe complete with all adjustments.

The Dodge Manufacturing Co. supplied a number of shafting couplings and hangers while the Bahman Iron Works, Mishawaka, Indiana, had a rice huller and polisher, a corn-sheller and separator rice machinery by F. H. Schule and several sugar cane crushers by George L. Squier.

A 16 h. p. traction engine and a 50 h. p. portable engine were the contribution from the Gar-Scott Company. The portable engine was in operation supplying power for four generating sets utilized in lighting Machinery Hall.

All the above firms were represented in the Philippines by the Pacific Commercial Co. whose machinery department is widely known throughout the islands.

werke's 45 k. w. generator. This outfit is to be placed in the Bureau of Science as the first unit to an extensive installation to be utilized in supplying light and power to the hospital and other buildings in the group in that vicinity. The machinery is specially adapted for use of poor grade lignite which features a large percentage of Philippine coal measures, and was built after a number of tests at the factory at the request of the Bureau. An additional set will be added at an early date. Another 16 h. p. Otto kerosene engine belt connected with 17½ k. w. generator complete with standard switchboard and automatic regulator was in operation and supplied the illumination for the booth.

There were also a number of rice mills and a five roller sugar mill complete in the exhibit.

A splendid line of woodworking machinery manufactured by Kirchner & Co. of Leipzig held a prominent position in this section.

Automatic scales manufactured by the Automatic Scale Co. Ltd. which were ordered for

was representative of the adaptability of the German manufacturer to cater to local needs.

THE MANILA ELECTRIC RAILROAD, LIGHT & POWER CO., MANILA,

This company made an excellent electrical display in the center of Machinery Hall which was crowned by a complete miniature electric railway in continuous operation throughout the exposition. The booth was octagon in shape and was mostly devoted to a display of electrical household equipment in operation while the whole was profusely illuminated by hundreds of electric lights.

The General Electric section of the M. E. R. R. & L. Co.'s display comprised a large cooking table with boiler, percolator, teapot, gridiron, and frying pan; an ozonator and an ozone purifier, toasters, fans, and a G. E. portable drill.

John Herr Mfg. Co., Philadelphia, contributed an electric floor renovator with two steel brushes, a hairbrush, and a sandpaper disk. The Richmond Sales Co., New York, supplied



Squires, Bingham & Co.

ANOTHER VIEW OF THE FRANK L. STRONG EXHIBIT

THE MILTON E. SPRINGER CO.

Occupying a prominent place in Machinery Hall was the attractive exhibit of the enterprising hardware firm of Messrs. Milton E. Springer Co. including a large variety of machine and mechanics tools. The main attractions were large panels displaying the Disston saws and saw mill supplies, including circular, cross-cut, band saws, etc.; lubricating oils of the Valvoline Oil Manufacturing Co.; the Oildag and Grayday lubricating pastes; metal polish; and paints and varnishes from the La Salle Varnish Co., Chicago, Ill.

An assortment of carpenters' tools manufactured by the Atha Tool Co. of Newark, N. J.; Luther grinders for various purposes manufactured by the Luther Grinder Manufacturing Co. of Milwaukee, Wis., and hand lawnmowers manufactured by the Coldwell Mfg. Co. of Newburgh, N. Y. This last company also manufactures a motor lawn mower one of which was recently purchased by the city of Manila for use in the different parks of the municipality.

GERMANN & CO., LTD., MANILA

The exhibit of this leading German machinery house was very extensive and included the product of leading German and American manufacturers.

The Gasmotoren fabric Deutz were represented by the exhibit of a 75 h. p. Otto suction gas engine directly connected to Siemens Schuckert

installation in the Pototan Rice Mill were novelties that attracted much attention and are extremely popular on account of their accuracy and adaptability.

Germann & Co.'s electrical display was most extensive and attractively arranged. Among the features was an electrical signal clock manufactured by the Self Winding Clock Co. of New York which will be installed in the new Manila Normal School and will be connected by the most advanced type of wiring with all the different class rooms. There were also exhibited extensive lines of electrical measuring instruments, engineering and insulating meters, fixtures, etc.

Among the last was a large chandelier designed especially for the large dining room of the Manila Hotel. It is large but simple in design and will prove most adaptable and attractive in the large space it is expected to illuminate.

The lights used in the illumination of the booth were principally the Quarz globes and a mercury arc lamp rich in violet rays and very economical. Then there were various kinds of electrical, medical and surgical apparatus, switchboard instruments, etc.

Added to this was a very comprehensive display of Krupp's light railway material, nickel plated ware, Wolfram and Osram lamps, and some of Siemens & Halske's water meters that have had an extensive sale in Manila.

The booth of Messrs. Germann & Co. Ltd. was one of the most attractive in the hall and

a Richmond vacuum cleaner; the Domestic Equipment Co., Chicago, a domestic electric washing machine, and A. L. Sykes Mfg. Co. of Cincinnati a fireless cooker.

The Barker electric hair-drier manufactured by James Barker, Inc., Philadelphia, electric vibrators de luxe by the Shelton-Electric Co. of New York, curling iron heaters and water cups of the Simplex Electric Heating Co. of Boston, and radial electric drills by Stanley & Patterson, New York, were also included. An extensive display of electric fans, lamps, brackets and shades of French and English manufacture as well as the product of Westinghouse concluded a most tastefully arranged electrical display.

THE PHILIPPINE ACETYLENE CO.

This company exhibited an assortment of acetylene lamps, brackets, etc., and the booth was attractively lighted by an acetylene plant suitable for house lighting. There was also a continual demonstration by an oxy-acetylene plant in welding and cutting of large sections of metal, that attracted considerable attention.

H. R. COOPER & CO.

This firm has an extensive exhibit covering their different agencies. Among the principal features were a hot air pumping engine manufactured by Rider Ericsson Engine Co. of New York; roofing by the Philip Cary Co. of Cincinnati; O; marine oil engines by Meitz & Weiss and an extensive display of light railway equipment



CHAS. M. COTTERMAN,
DIRECTOR GENERAL OF THE PHILIPPINE
CARNIVAL ASSOCIATION

including locomotive and dump cars on track by Messrs. Orenstein & Koppel and Arthur Koppel.

Fred Wilson & Co.—This exhibit included several pieces of rice milling and hulling machinery manufactured by the Engleberg Huller Co. of Syracuse, N. Y.; cane crushers and sugar mill equipment by Atkin & Co., Glasgow; Britannica portable engine by Marshall Sons & Co., Gainsborough, Eng., and pumping machinery by The Hill Machinery Co. of Anderson, Ind.

C. E. Helvie.—This exhibit included a 10-ton Buffalo-Pitts steam roller, manufactured by the Buffalo Steam Roller Co., ingot iron culverts, by the Security Vault and Metal Works of Portland, Ore.; pure copperable and lightning rods by Maher & Son Lightning Rod Co. of Preston, Ia.; the Motz cushion tires by the Motz Fire & Rubber Co. of Akron, Ohio; Jones speedometers and recorders; hand gasoline fire engine by the Howe Engine Co., Indianapolis, Ind.; exhibits by the Spire Motor Wheel Co. of America, and signal equipment for life boats and rafts manufactured by the Coston Signal Co. of New York.

Prizes for the machinery exhibit at the Philippine Exposition of 1912 were awarded to the following firms:

First prize and gold medal to F. L. Strong and second prize and bronze medal to Germann and Company for machinery exhibit.

First prize and gold medal to the Bahman Iron Works and second prize and bronze medal to George L. Squier for sugar cane crusher.

First prize and gold medal to F. H. Schule Ltd. and second prize and bronze medal to Bernard and Leas for rice machinery.

First prize and gold medal to Manning, Maxwell and Moore for metal working machinery.

First prize and gold medal to the General Electric company and second prize and bronze medal to Siemens-Schuckert Works for electric generators and motors.

First prize and gold medal to the Crescent Machinery company and second prize and bronze medal to Kirchner-Leipzig for wood working machinery.



W. W. BARCLAY,
DIRECTOR GENERAL OF THE PHILIPPINE EXPOSITION

First prize and gold medal to the American Sawmill company for sawmill machinery.

First prize and gold medal to the Philippine Acetylene company for gas, illuminating and welding.

First prize and gold medal to Siemens and Halske and second prize and bronze medal to H. Maihak for technical equipment.

First prize and gold medal to the Simons Manufacturing company and second prize medal to E. C. Atkins and company for hand tools.

First prize and gold medal to Garr, Scott and company and second prize and bronze medal to Marshall Sons and Company for engines and boilers (portable).

First prize and gold medal to American Steam Pump company and second prize and bronze medal to the Blake Pump company for pumps; boiler feed.

First prize and gold medal to the Fairbanks Morse company and second prize and bronze medal to the Gould Pump company for pumping machinery.

First prize and gold medal to the Gasometer Fabrik Deutz and second prize and bronze medal to Meitz and Weiss for internal combustion engines.

First prize and gold medal to the Buffalo Steam Roller company for road roller.

First prize and gold medal to the General Electric company and second prize and bronze medal to the Domestic Equipment company for electric household novelties.

First prize and gold medal to the York Manufacturing company and second prize and bronze medal to the Remington Machine company for ice machinery.

First prize and gold medal to the American Blower company for blowers.

First prize and gold medal to the James Lefel and company for engines and boilers (stationary).

First prize and gold medal to the American Road Machinery company for rock crushers.

First prize and gold medal to the Ransome Concrete Machinery company for concrete mixers.

First prize and gold medal to Orenstein and Koppel for industrial railroads and rolling stock.

First prize and gold medal to the Howe Engine company and second prize and bronze medal to the American La France Fire Engine company for fire engines and extinguishers.

The following firms received honorable mention:

The Vacuum Oil company for the best lubricating oils.

The Dearborn Drug and Chemical company for the best boiler compounds.

Barburn, Bernard and Lurenne for the best lenses lantern.

A. J. Morse and Sons for the best diving outfit, submarine.

The Fairbanks-Morse company for the best wind mills.

The Ingesoll Rand company for the best pneumatic tools.

The Siemens Schuckert Lake Works for the best switchboards.

The Dodge Manufacturing company for the best transmission supplies.

A. E. Decoufli for the best cigarette machine.

The Empire Plow company for the best agricultural implements.

The Rifle Engine company for the best hydraulic rams.

COMMERCIAL EXHIBITS

Running east and west was a long building flanking the provincial exhibits to the south, filled with commercial exhibits by the leading merchants of the metropolis. Here were represented every variety of manufactured article

VARIABLE SPEED INDUCTION MOTOR FOR FAN SERVICE

Where the employees of offices, factories and shops are required to work together in the same room, the cheerfulness, health and efficiency of the working force will depend to a large extent upon an abundant supply of pure air. To accomplish this result, it is usually necessary to install proper ventilating apparatus, the small expense involved being amply compensated for by the increase and betterment of labor performed under hygienic conditions.

The General Electric Company has recently placed on the market a new line of polyphase variable speed exhaust sets having a simplified method of speed control, and admirably adapted to ventilating service. These sets employ a very simple method of speed control, the rotor and shaft being shifted longitudinally so as to bring windings of different characteristics into the magnetic field of the stator. The high speed winding consists of a squirrel cage low resistance rotor, and extension of the spider supporting a cast iron ring which constitutes the low speed rotor.

The motor frame is of the standard riveted, frame type, the field flanges having cast ears provided for attaching the supporting tripod. The shaft is extended at one end to permit mounting on the fan, while the opposite end has a thrust adjustable along the axis of the shaft. An adjusting rope wheel is mounted on the extended shaft, this wheel being threaded to an extended portion of the opposite fan shaft bearing. Maximum speed is secured by rotating the wheel by means of the adjusting rope, to the extreme right, the opposite limit of travel giving the minimum speed.

carried to meet the growing demand throughout the archipelago. The following is a short résumé of the exhibits:

Messrs. E. C. McCullough & Co. had two booths, one representing the firm's electrical department and the other an automobile booth, the latter having a Mitchell car, automobile fixtures, etc., on exhibition, and a number of Remington typewriters and typewriter supplies.

The Eureka Paint Co., a local company, had an extensive display of its product with photographs and samples of painted iron to demonstrate its enduring and preserving qualities.

Messrs. A. Moll & Co.'s booth contained a display of Monarch bicycles and bicycle supplies.

Messrs. Erlanger & Galinger had a splendid display of telephones and telephone fixtures by the Western Electric Co.; Globe-Wernicke office furniture; L. & C. Smith typewriters; Victor phonographs, Meilink's safes, Burroughs adding machines, Indian motorcycles, National cash registers and bicycles.

The San Francisco had an extensive exhibit of Regal Shoes.

I Beck Inc. made a special display of Columbia graphophones, sporting goods, and office fixtures.

The Estrella del Norte Auto Palace had on exhibit a Renault car and automobile supplies.

The Manila Fine Art Studio provided an attractive exhibit of hand painting in water colors and oil representing local historical scenes and landscapes.

The Nestlé's and Anglo-Swiss Condensed Milk Co. had an attractive booth in which their product was artistically displayed.

The Cadwallader-Gibson Lumber Co. had a comprehensive display of fine household and office furniture of all kinds manufactured exclusively from the highest grades of Philippine hardwoods.

The American Hardware & Plumbing Co. had a display of automobiles and autotrucks, the former the product of the Cadillac Mfg. Co., Detroit, and the latter of the Gream Motor Car Co. of Lima, Ohio.

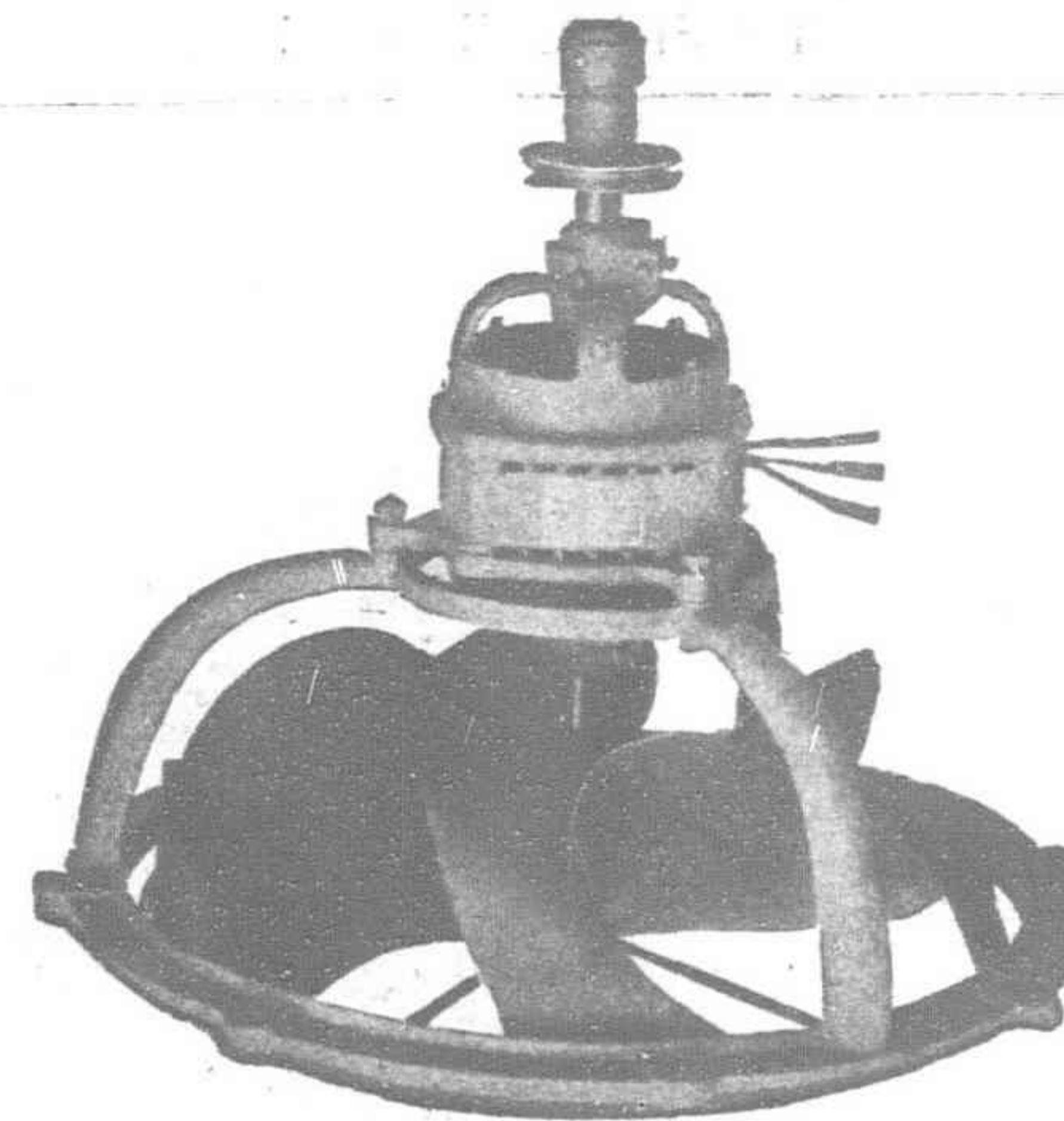
F. H. Thomson's booth contained an exhibit of Iver bicycles, bicycle supplies, Crown batteries and telephones, electrical novelties, etc.

Jas Kelly & Co. had an attractive exhibit of Singar bicycles with accessories, also the Victor bicycle and a large display of rebuilt typewriters.

C. Pardo de Tavera had a display of Clement-Bayard automobiles.

S. T. Nepomuceno contributed an extensive display of wood sculpture in varied sizes and themes.

Messrs. Roensch & Co. had a display of



50% speed variation may be obtained at high efficiency, the actual power taken from the line being reduced approximately in direct ratio to decrease in speed.

The fan is made in 18, 24, 30, 36 and 42 in sizes.

ACKLEY BRAKE & SUPPLY COMPANY, NEW YORK, N. Y.—This company has been incorporated under the laws of the State of New York. Griffin S. Ackley is president and manager, and John C. Raymond is secretary and treasurer of the new company, with offices at 50 Church Street, New York City. This company has taken over from the Ackley Brake Company all the rights of the Ackley adjustable and the Ackley No-Staff brakes for Japan, China, Philippine Islands, Australia, New Zealand all the countries of South America and of

sporting goods, bicycles, etc., including the famous Parker shot gun.

Outside the different buildings assigned to commercial displays were separate buildings by the Pacific Commercial Co. and Messrs. Norton & Harrison Co. displaying the different lines carried in their import department.

Messrs. Behn Meyer & Co. made a demonstration of the benefits of the use of fertilizer in a corner of the grounds, the greater producing capacity of the fertilized ground being demonstrated as against unfertilized ground. The plants had been set out several months previous and the difference indicated to the provincial visitors was very marked.

Every year some American in Manila is chosen to assume the responsibility for a successful Carnival. There is no remuneration attached to the position. It means sacrifice of time, a thousand annoyances, and the companionship through months of scheming and drudgery of the phantom of fear that the veering public taste for amusement may not be properly interpreted. Until the last day of the Carnival closes the director general is on pins and needles for if the public does not respond there is the deficit. And deficit means failure and failure means criticism. Director General Chas. M. Cotterman of the 1912 Carnival did not run away when he was a boy to master the circus business or solve the problem of catering to the unstable public in the way of amusements. He attached himself to the U. S. Postal service early in life and assiduously discarded the frivolous until at present he is head of the Bureau of Posts and Telegraphs. He has always been public spirited, so when the directors of the Carnival Association gave him his "Message to Garcia" he did not hesitate. The receipts for Carnival week were over ₱100,000 and on the closing night 75,000 enthusiastic visitors crowded the grounds. This was the best kind of a compliment Director General Cotterman and his able staff could receive. It meant success written in large letters.

The success of the Philippine Exposition was largely due to the executive capacity of the Director General, Mr. W. W. Barclay, and his well chosen staff. The splendid cooperation of all elements in an united effort to make the exposition a success, was a splendid demonstration of Director General Barclay's adaptability to cope with many and varied difficult situations.

His years of service in the provinces made him familiar with the wishes of the Filipinos and enjoying their confidence and respect Mr. Barclay was one among the very few that could have gained the general support so necessary to the successful outcome.

Central America south of Mexico, Cuba, Porto Rico and the other islands of the West Indies. The company will also handle the Peacock brake in the territory named. In addition the new company will engage in a general railway and tramway supply business in the United States, Canada and Mexico, and import and export tramway and railway specialties and supplies to all countries of the world. In the latter capacity it will act as the American correspondent of the British Ackley Brake Company, of London; Cie. Francaise des Freins Ackley of Paris and the Deutsche Ackley Bremse Company of Berlin. Mr. Ackley, president and manager of the new company, is a pioneer in the geared hand-brake business. He organized the National Brake Company of Buffalo,

FILIPINO LABOR AND BUILDING CONSTRUCTION

(Continued from page 286.)

most efficient, and the most desirable as a skilled or unskilled labor. It did not take me very long to find out that while the Chinese continued to use their antiquated methods, the Filipino was always eager to improve himself and had no prejudice against adopting western methods to increase his efficiency. The Chinese refused to respond in the slightest degree to encouragement in any form and took no personal interest in the organization or pride in the character of the work under way. On the other hand, the Filipino not only took a personal pride in individual work but always stood ready to perform extra duty to help out the contractor and his organization as a whole to fulfil contracts. He could always be depended upon for loyalty in a pinch where lack of sympathy and cooperation meant loss of money and prestige to the contractor. The Chinese always failed me at such a juncture.

"I have always made it a point to recognize merit and special effort and keep closely in touch with the organization. I believe the satisfactory results attained have been largely due to permanent organization covering a period of over eleven years. The company's force is never less than 600 men which may be termed the nucleus which is easily expanded to 2,000 men as has been done on several occasions. The efficiency of the workmen may be measured by the length of time employed at any one kind of work. I have my force divided in such a manner that I might say that each workman is a specialist in some particular line.

"Evidence of efficiency due to continued application at one kind of work was convincingly demonstrated in the company's contract on the Manila reservoir. It was a large undertaking so that there were plenty of time for the laborers to adapt themselves to the work. After one-quarter of the contract was completed the cost per unit was reduced 50% compared with the first month's work. Similar results have been secured on other contracts but in no instance was the increase in efficiency so great.

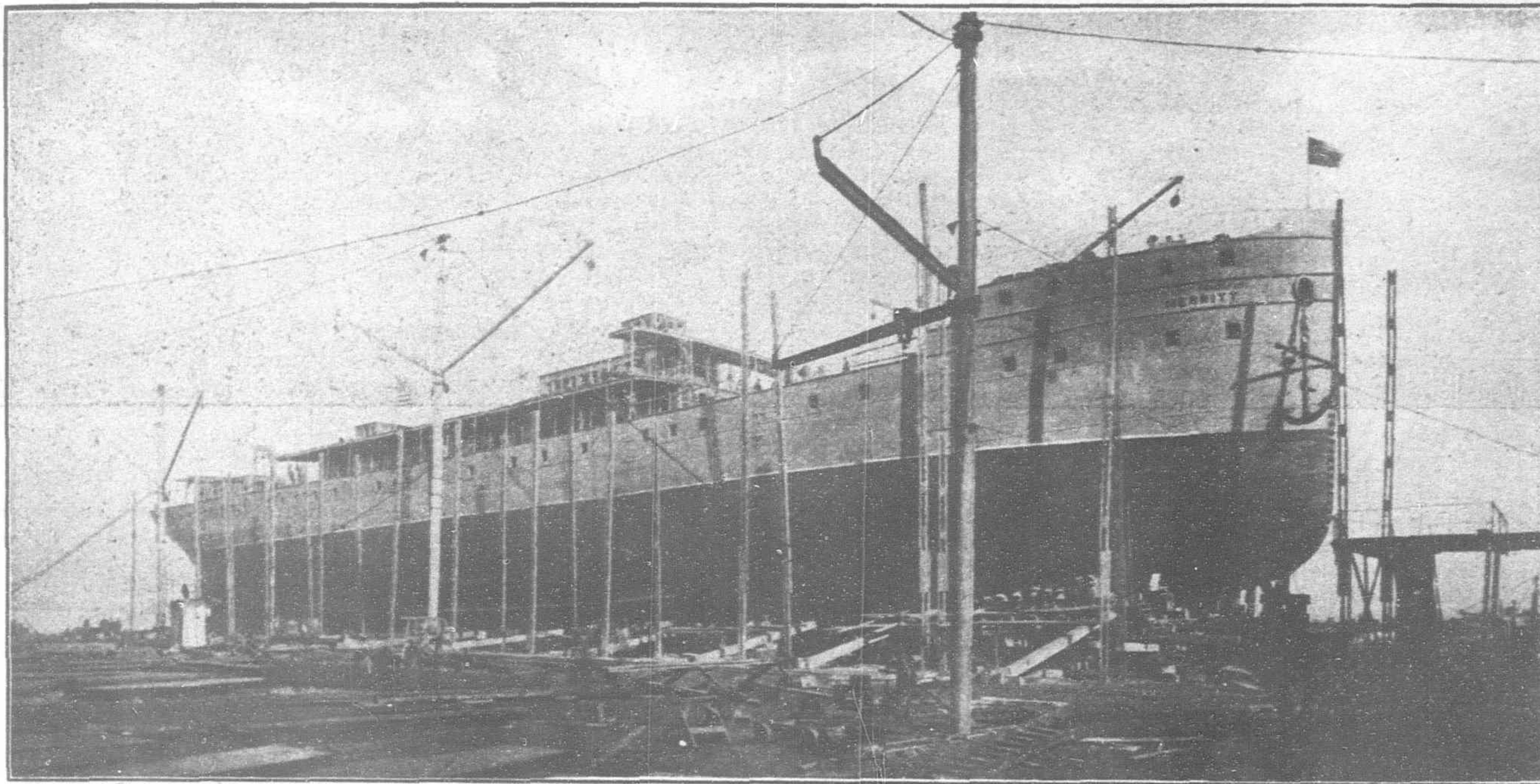
"In my organization I have a general superintendent, several inspectors and foremen, all Americans, and under them are the Filipino sub-foremen and capitales. I believe the Filipino with opportunity for technical and practical training in the trade schools will develop into a competent supervisor. I have a graduate of the Manila Trade School who has been advanced to take charge of minor construction, and gives splendid satisfaction. He has just completed two reinforced buildings of which he had entire charge with the exception of such inspection and general superintendence as is usual in directing construction work.

"The superintendence must be competent. Orders should be given correctly, firmly, and impersonally. Incompetency in superintendence is quickly detected by the ambitious Filipino work and the selection of foreman must be given careful attention, as an incompetent overseer will disorganize a force more rapidly than any other undesirable factor.

"I find the Filipino laborer as responsive as any western laborer to just and sympathetic treatment. He is cheerful, ambitious, and loyal, once he feels that his work is appreciated and that he is receiving equitable return for his labor. I repeat again that if I had the choice of all the different kinds of Oriental labor for employment on construction work in the Philippines, I would select the Filipino, trained or untrained."

THE UNITED STATES ARMY TRANSPORT "MERRITT"

LAUNCHED AT THE POOTUNG WORKS OF THE SHANGHAI DOCK & ENGINEERING CO. LTD.



UNITED STATES ARMY TRANSPORT "MERRITT" BUILT AT THE POOTUNG WORKS OF THE SHANGHAI DOCK AND ENGINEERING CO. LTD.

The Shanghai Dock & Engineering Co., Ltd., have in the past executed many important contracts in all branches of engineering and shipbuilding during their long successful business career, but the high mark of their achievements was today consummated in the launching of the "MERRITT" for the Quartermaster's Department of the United States Army, Philippines Division. The contract for this vessel was awarded the local company in open competition against the largest corporation operating East of Suez and also on the Clyde in the last week of April, the vessel to be delivered in Manila, P. I., within twelve months, and shows that the satisfactory work done by the builders in the past is recognised by the U. S. Government Officials.

The first keel plate was laid on the 10th July, 1911, from then till date about 1,800 tons of steel and other material apart from the machinery has been built into hull of vessel, from this time one month for inclement weather when no work could be carried on has to be deducted, making this a record in shipbuilding for China.

The "MERRITT" is schooner-rigged with two steel masts and of the following dimensions:

Length over all.....	300'-0"
Breadth moulded	45'-0"
Depth to awning deck.....	23'-3"

The hull is built of steel throughout to Lloyd's requirements for the 100 A-1 class, and is sub-divided by six watertight bulkheads.

A cellular double bottom extends the full length for use as ballast tanks or fresh water storage.

The vessel has been designed as an "Inter-island Transport" for conveyance of officers, troops, and supplies from Manila to the various outlying islands, the accommodation being located on upper, awning and shade decks with large refrigerating chambers placed in forehold; the upper and awning decks are steel throughout, sheathed with teak, all houses on these decks are of steel lined with Oregon pine with accommodation for 50 passengers and berths for 350 soldiers.

On the awning deck amidships the main Dining Saloon capable of seating 50 is located, it will be finished in white and gold with electroplated electric fittings and leather-covered upholstery to match.

Forward of saloon is the Quartermaster's suite—including bedroom, bathroom and office

fitted up in luxurious style with every possible requirement.

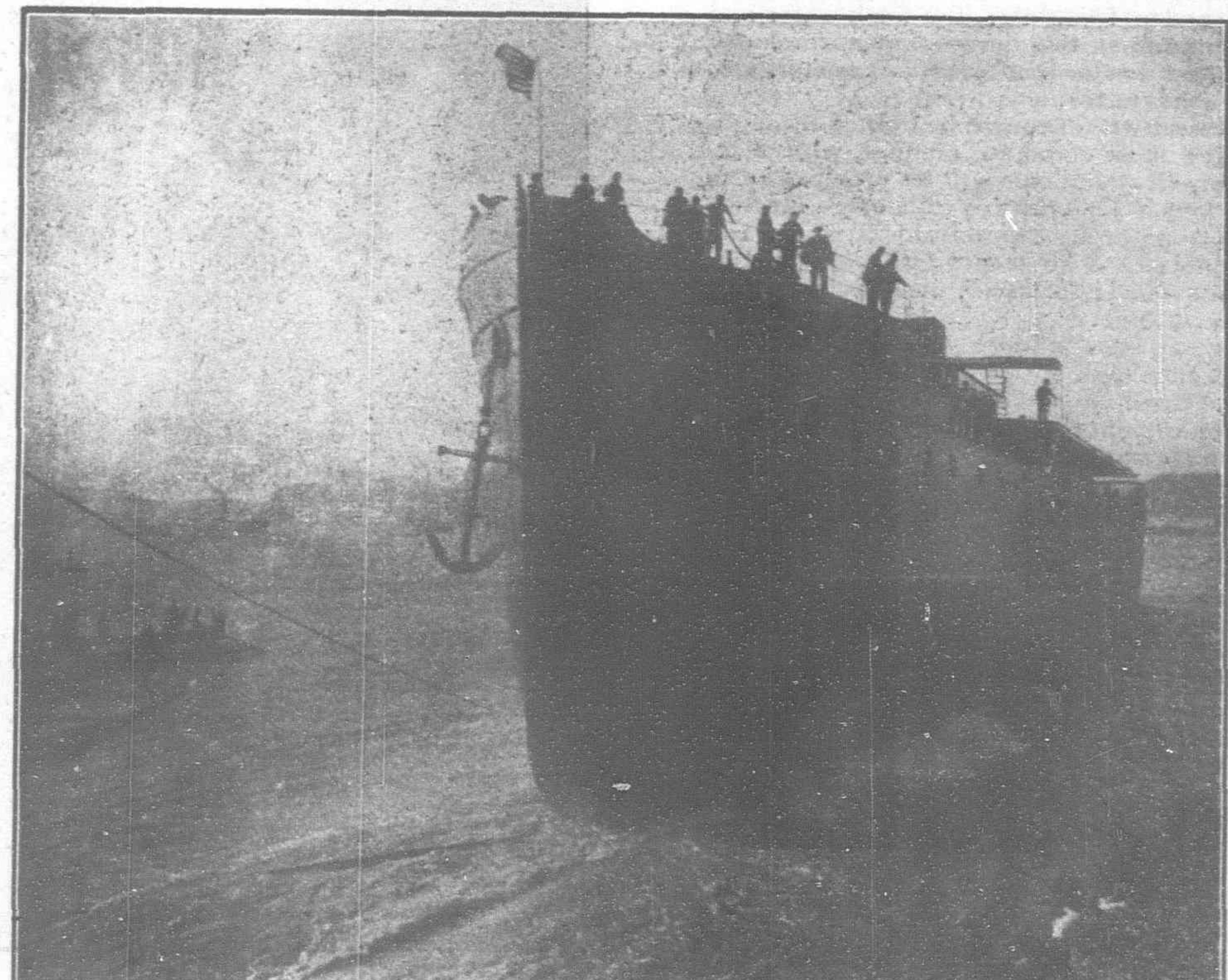
Aft of dining saloon are the 1st class state rooms with requisite bathrooms to accommodate 40 passengers.

In a separate house on aft end of awning deck the hospital is located, fitted with 12 berths, bathroom, operating room, dispensary and room for attendants which will be equipped with all modern surgical and medical requisites.

On the same deck forward the crew are housed under forecastle.

On the boat deck a large steel house accommodates Captain and Officers with the fore part arranged for the navigation of the vessel with an extra chart house placed immediately overhead.

The upper deck provides accommodation for engineers, electricians, steward's clerks, etc., besides 2nd class passengers with the necessary bath, lavatory and mess rooms for same.



THE LAUNCH OF THE U. S. ARMY TRANSPORT "MERRITT" AT SHANGHAI



AFTER THE LAUNCH

Fore and aft of engine and boiler casing are berths for 350 soldiers, these are easily removable being made of light steel fittings.

The sailors are berthed at aft end and firemen at fore end of this deck, there are washing rooms and lavatories provided for use of soldiers and crew on this deck with salt and fresh water supply laid on.

The deck machinery consists of a powerful steam windlass and capstan, three steam winches, steam and hand steering gears and steam warping capstan aft.

A wireless house has been placed on shade deck for wireless telegraphy with which the vessel has to be equipped.

The vessel will be propelled by twin screws driven by triple expansion three cylinder surface condensing engines of ample power for a speed of 12½ knots per hour.

The design of the engines is the "open front type" with cylinders carried at front by turned steel columns and at back by the condenser and one separate column.

Direct acting steam reversing gear is fitted and all hauling gear is brought to a column in centre of engine room. Each set of engines is fitted with independent centrifugal circulating pumps and twin cylinder air pumps. Separate vertical feed pumps are installed with automatic gear and the auxiliary gear consists of independent feed, bilge, fire, fresh water and sanitary pumps, two large evaporators, distillers, feed heater and grease extractor, also patent ash ejector.

The vessel will of course be lighted throughout in the most elaborate manner with electric light, all staterooms will be provided with electric fans, all hatchways with cargo clusters and a very powerful searchlight fitted on top of charthouse. Two sets of 35 K. W. generating plants will be installed, each set driven by a steam turbine.

Refrigerating chambers having a capacity of 18,000 cubic feet are provided in the forward hold and three ice machines will be installed of ample capacity with brine pumps, tanks, coils, etc., complete.

Mechanical ventilation will be provided by two "Sirocco" motor driven fans supplying fresh air to all staterooms, bathrooms, soldiers' quarters, engine and fire rooms, etc.

Three boilers of the cylindrical return-tube type, constructed for a working pressure of 180 lbs. per square inch, and an hydraulic test pressure of 260 lbs., built to the rules of British Board of Trade and Lloyd's, will generate steam for main and auxiliary machinery.

The "MERRITT" now heads a very long list of steamers constructed during the past ten years for the U. S. Authorities in the Philippine Islands and among which we may mention the following:

"Luzon"	"Samar"
"Busuanga"	"Leyte"
"Balabac"	"Pluto"
"Negros"	"General Weeks"
"Masbate"	"Flake"
"Palawan"	"Snowdrop"

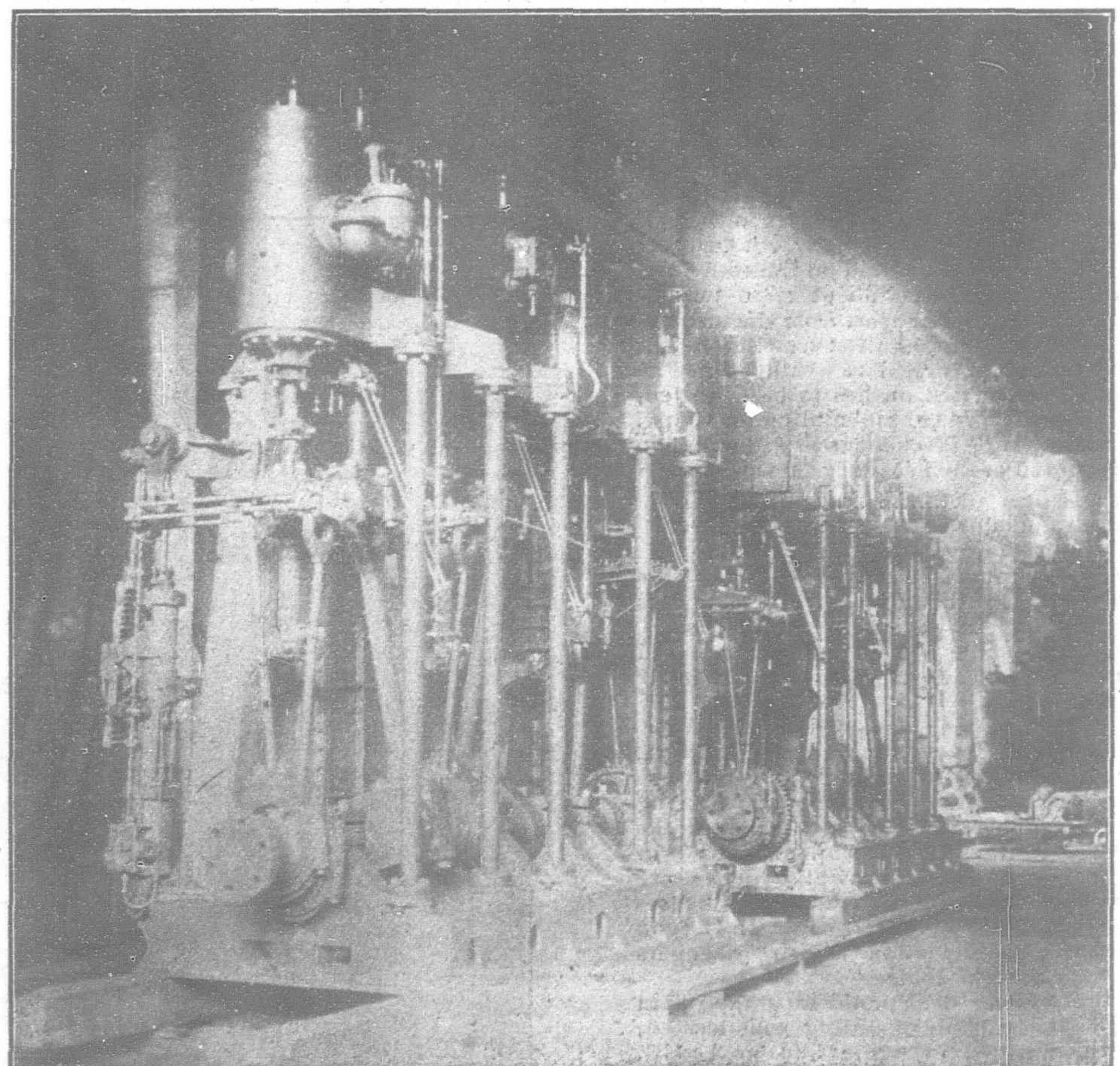
"Basilan"	"Mitchell"
"Tablas"	"McConville"
"Coregidor"	"Ledyard"
"Polillo"	"Adams"
"Mindanao"	"Tilly"
"Mindoro"	"Forby"
"Panay"	

besides which a large number of steel lighters and lorcas were built.

EXCELLENCE OF AMERICAN SHIPYARDS.

Advices received at the State Department indicate a very gratifying degree of enthusiasm displayed on the part of Admiral Domecq Garcia, of the Argentine Navy, over the excellence of American shipyards. Admiral Garcia was recently in this country in command of the Argentine Naval Commission supervising the battleships now under construction here, and

on his return home was extensively interviewed. He declared that the Rivadavia and Moreno, which are being built in the United States, would be models not only in power, but also in detail of construction, and instances the Delaware, of American construction, which was the wonder of the coronation festivities at Spithead. He stated that American yards coming under his observation are not only equal to, but in many points surpass, the most renowned yards of Europe. Admiral Garcia had ample opportunity to make the comparison, as prior to his coming to America he was head of the Naval Commission of the Argentine Republic in London, and made a close study of European methods. He pays the highest tribute to the development of the metallurgical industry of the United States, claiming for its iron and steel an unassailable excellence."



ENGINES OF THE U. S. ARMY TRANSPORT "MERRITT," CONSTRUCTED BY THE SHANGHAI DOCK AND ENGINEERING COMPANY LTD.

INDUSTRIAL INSTRUCTION IN THE PHILIPPINES

The eleventh annual report of the Director of the Bureau of Education of the Philippine Islands, while significant that in the thirteen years of American occupation there has been twelve years of active organized effort in providing for the children of the Philippines every possible facility of receiving instruction through the public school, it marks the close of a year of expansion in industrial training that is becoming more and more the main feature of educational work of the American government in the Islands. Through the courtesy of the Director of Education we are able to present a number of illustrations covering this feature as well as views of the different typical school buildings.

chief features of his administration. Of the 265 building projects turned over for construction only 70 have been completed.

The total number of teachers in all grades at the end of the year 9,086 of which 683 were American and 8,303 Filipino. This number includes 683 Americans and 1054 Filipinos while the balance of 7,349 Filipinos are paid by the municipalities.

During the year P6,447,713.25 were expended by the Insular, Provincial and Municipal governments for salaries, wages and contingent expenses only. Of this the Insular government expended P3,721,966.49, the provinces, P209,286.94 and the Municipalities P2,516,-460.12.

correspondence pertaining to construction of school houses, the reservation of sites throughout the islands and upon information secured by this division with respect to size of sites, registration and adequacy of local contributions, Insular allotments are based. Referring to the program of construction, the Director says:

General Building Program.—The experience of the Bureau of Education with school buildings has been so extensive that this office is now in a position to adopt a very definite policy as regards types of construction, school sites, location of buildings, and care and maintenance of school premises. It has been the aim to provide permanent school buildings which will be hygienic, and attractive in appearance,

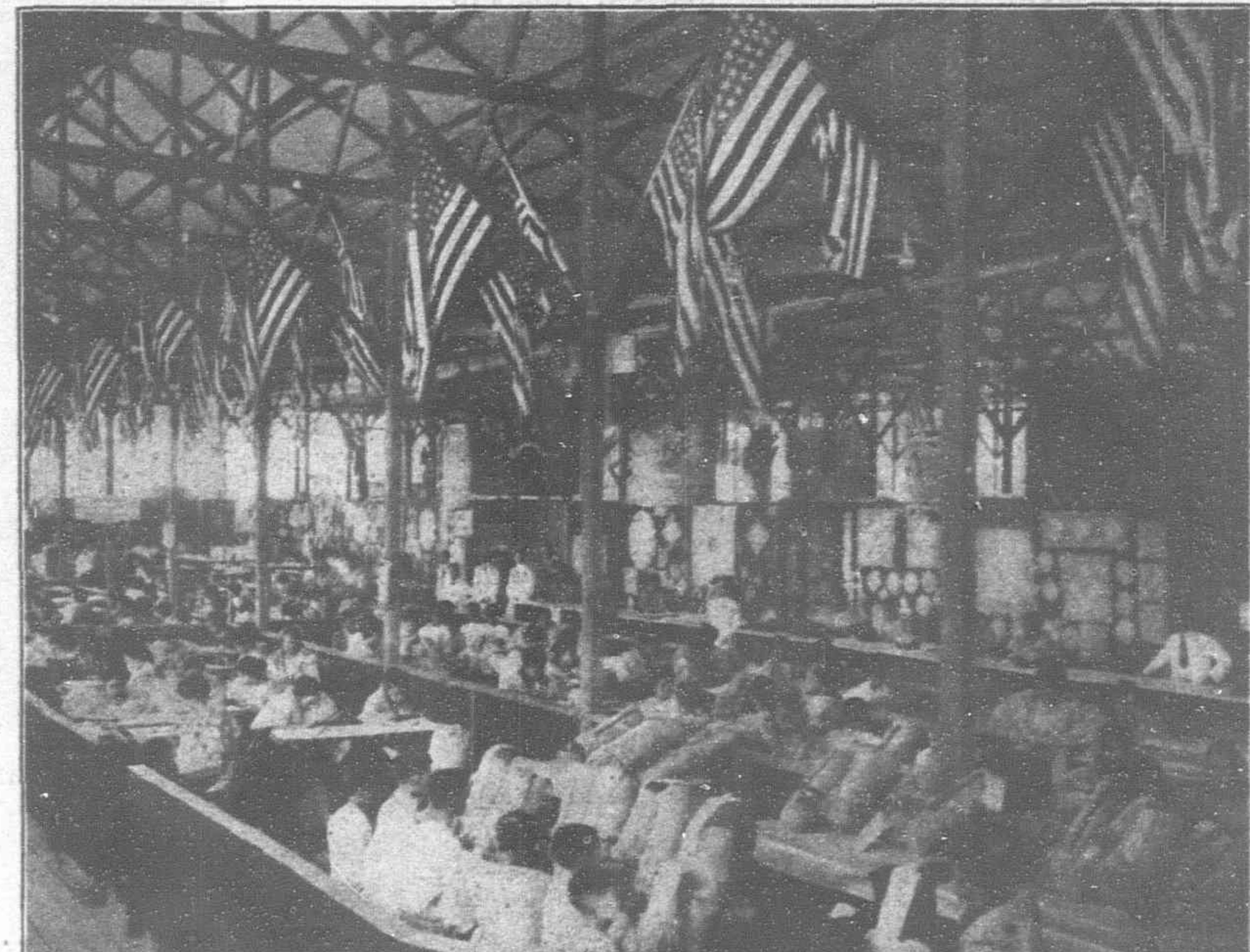


A MAIN AISLE IN THE BUREAU OF EDUCATION BUILDING, CARNIVAL, 1911

According to the report the enrolment in all schools for the year reached 610,493 and the average daily attendance 395,537 for the record month. The number of schools in the Bureau were 4,404 scattered throughout the archipelago giving approximately one school to every 1,550 of the entire population. During the year the Director has made the promotion of a comprehensive school building program one of the

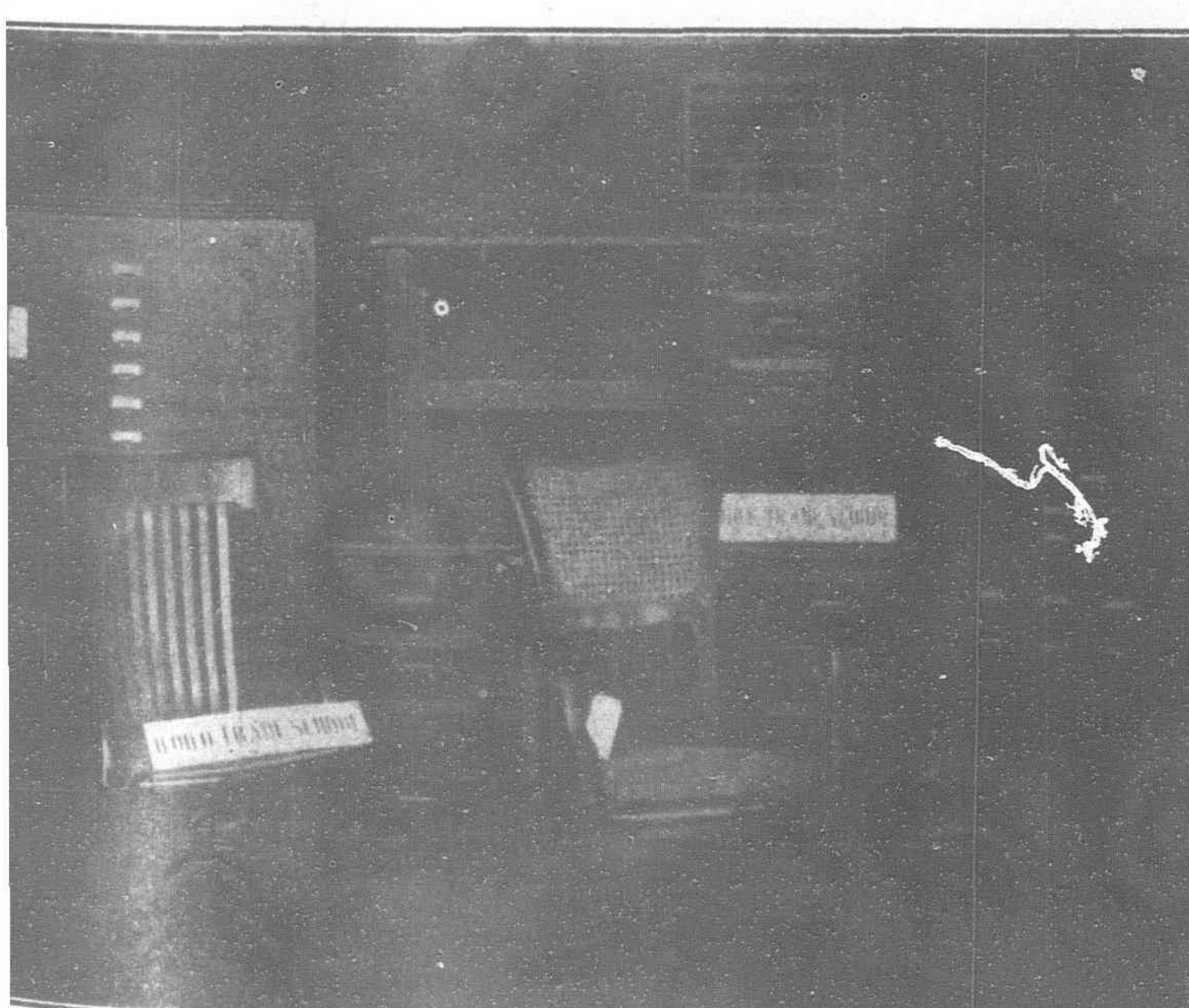
Since December 1904, a total of P4,149,000 has been appropriated for school house construction, of which P2,000,000 was for barrio schools; P350,000 for trade, intermediate and high schools, P650,000 for schools buildings in the provinces, P200,000 for central school buildings, P449,000 for Normal schools and P500,000 for insular schools.

The Building Division has charge of all the

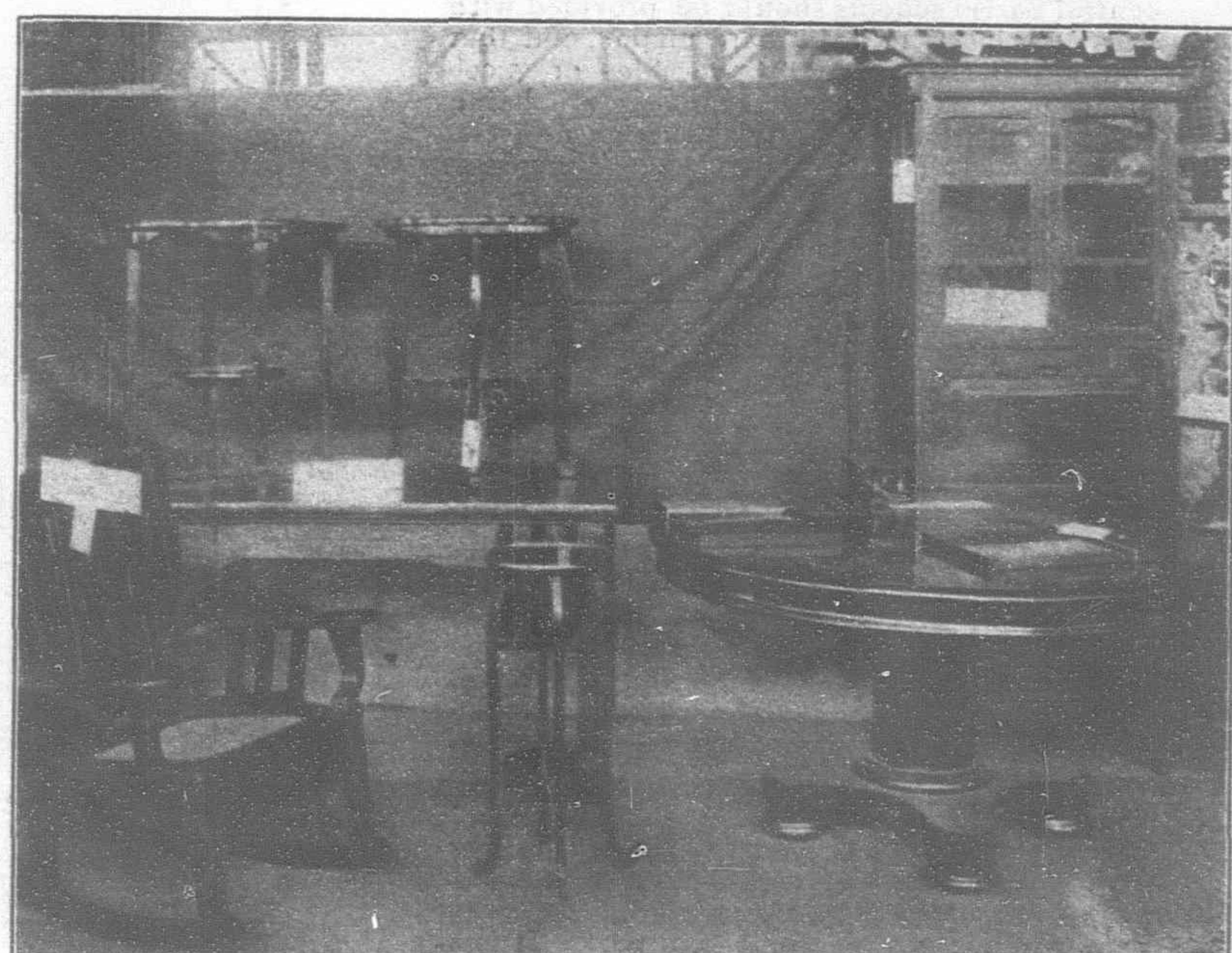


A WORKING EXHIBIT OF THE MANILA CITY SCHOOLS AT THE CARNIVAL, LACE MAKING AND EMBROIDERY

affording ample class-room space to meet the needs of the schools, and at a cost not to exceed the very limited funds available for constructions purposes. To meet the demand for buildings of this description, it was found necessary to adopt standard plans based upon the uniform system of construction which allow additions to be made as necessity may demand without detracting from the appearance or utility of the original



OFFICE FURNITURE IN PHILIPPINE HARDWOOD, MANUFACTURED AT THE ILOILO TRADE SCHOOL



FURNITURE MADE AT THE PROVINCIAL TRADE SCHOOL, BACOLOR, PAMPANGA

structure. Such plans were adopted nearly two years ago, but it became necessary to perfect them in several details, and the revised plans of the Bureau represent the results of a continuous effort to secure school buildings which are adapted to the conditions of the country and which may be erected at a moderate cost without violating important principles of design. These buildings are built of reinforced concrete combined with good construction timber. The plans adopted to date provide for buildings of from one to ten rooms. Steps will be taken to provide plans for a twenty-room building within the near future.

Construction under Act No. 1801.—The million pesos made available under the provisions of Act No. 1801 have been allotted with the exception of a small sum which is being held for deserving projects where the work has been undertaken without having sufficient funds to complete the construction. This Act will make it possible for towns and barrios throughout the Islands to secure nearly three hundred buildings for the primary schools. Although the Act was passed nearly four years ago, very little was accomplished during the first three years, due largely to the fact that sites for the proposed buildings had to be surveyed and registered in the Land Court before construction could be authorized. The task of instructing municipal officials has been conducted under the supervision of the representatives of this Bureau in the field, with the result that there is a rather good understanding as to the conditions necessary to make a school site acceptable, and the funds appropriated have been widely distributed throughout the provinces.

Construction Under Other Acts.—In previous years, funds for the construction of intermediate, secondary, and industrial schools have been provided by Acts Nos. 1275, 1580, and 1688. These funds are now all allotted and the construction work made possible under these Acts is nearly completed.

It was found that funds provided in the Acts above mentioned were inadequate for the construction of necessary buildings for central schools, particularly the primary schools, in the larger towns and provincial capitals. To meet the needs in these places, ₱100,000 was appropriated by Act No. 1954, and an equal sum for the same purpose by Act No. 1988. With these funds, several large buildings have been authorized for construction. It is proposed to allot the balance for the erection of substantial and commodious central schools in provincial capitals which are able to meet the requirements. Act No. 2029 provides an additional million pesos under conditions almost identical with those of Act No. 1801.

School Sites.—The campaign for better school facilities includes the selection of adequate sites for the proposed buildings. It is believed that central barrio schools should be provided with sites of at least 10,000 square meters, and that outlying barrios should have sites of 5,000 square meters, and these standards are being observed in passing upon construction projects. It is believed that such a requirement is necessary if provision is to be made for future increase in attendance, for industrial buildings, for gardening, and for athletics. The present policy under which a large number of very excellent school sites have been secured will be adhered to except under most unusual conditions.

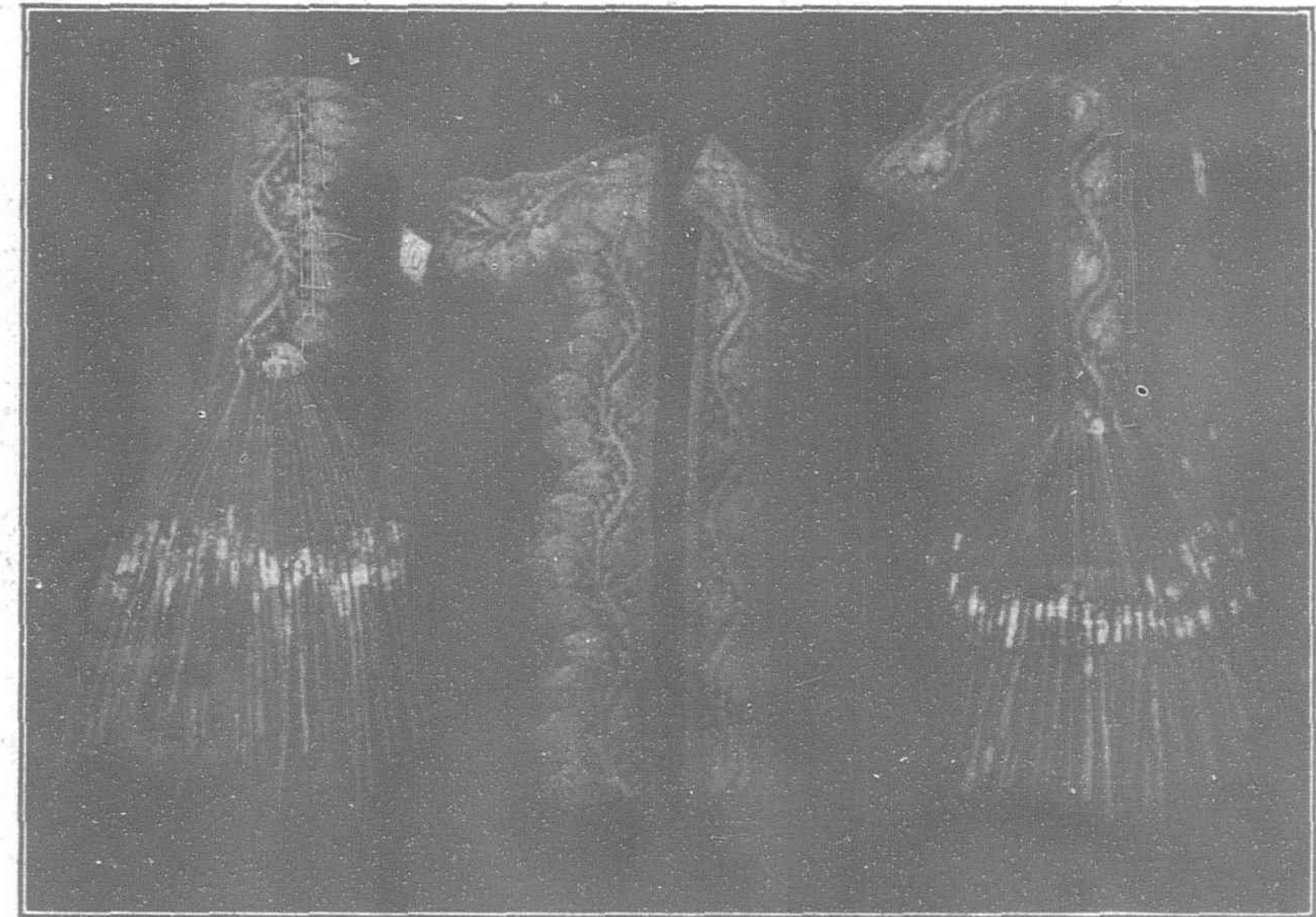
Improvement of School Grounds.—Much attention has been given during the past year to the proper maintenance of school buildings and school grounds; and while conditions still fall short of the ideal, it is believed that substantial improvement has been made. Superintendents and teachers have been advised that it is required of every school that the premises shall be made and kept clean and attractive. Very special attention is to be given during the coming year to the general enforcement of the published regulations with respect to improvement of school grounds.

Philippine Normal School.—The Philippine Normal School has continued its development during the past school year along the lines upon which it was reorganized in 1909. It has come into close touch with provincial conditions, and has adopted very effective means for

the preparation of young men and women for teaching under the conditions which prevail generally throughout the Islands. The industrial classes of the Normal School are of very great assistance to the administration of the Bureau in solving the problem of standardization of industrial instruction. The new concrete building, costing with its equipment and improvement of grounds approximately ₱449,000, is now in process of construction on Taft Avenue, and will presumably be ready for occupancy at the opening of schools in June 1912.

Arroceros. A memorandum prepared by this Office last December for use of the Secretary of Public Instruction in presenting to the Philippine Legislature the need for appropriation of ₱400,000 for the construction of new buildings for this school contained the following statement:

It is imperative that steps be taken at once to provide for the construction of new and ample buildings to be completed not later than the above date. An excellent site in the heart of the city consisting of 33,540 square meters of land facing Calle San Marcelino and the new Calle



DETAIL OF AN EXCELLENT DESIGN IN PILLOW LACE AND INSERTION MADE IN THE MANILA PRIMARY SCHOOLS.

This lace cannot be made by machine.

The Normal School dormitory has accommodated 200 girls, coming, as in former years, from nearly every province in the Archipelago. A new building for the dormitory is projected, this also to be a reinforced concrete structure, and to be located on Taft Avenue.

It is very encouraging to note that, whereas the number of graduates prepared to take up teaching work was in former years very small, the class of 1911 numbered 55. The class of 1912 will be still larger.

Philippine School of Arts and Trades.—The Philippine School of Arts and Trades has outgrown the temporary quarters which it has occupied during the past four years on Calle

Ayala has been set aside for this institution; tentative plans for the construction of the required buildings have been prepared; and it now remains to secure an appropriation with which to effect the reestablishment of this important institution. The sum of ₱400,000 is needed for this purpose.

It is desired to considerably enlarge the scope of the present Philippine School of Arts and Trades. The new institution should have the following departments:

Academic department: Offering practical instruction in the essential subjects of the intermediate and secondary courses.



MAKING PILLOW LACE, SAMPALOC PRIMARY SCHOOL, MANILA

Drawing department: Freehand drawing; mechanical drawing.

Woodworking department: Bench woodwork; machine woodwork; furniture finishing.

Ironworking department: Bench ironwork; machine ironwork, blacksmithing.

Carriage building and wheelwrighting department.

Automobile department: Giving instruction in the operation and repair of automobiles and explosive engines.

Ceramics department: Pottery, glass, and porcelain manufacture.

Textile department: With special attention to the design and manufacture of fabrics from Philippine materials.

Carving and modelling department.

Minor industries department: Construction of furniture from bamboo and rattan; hat-making from Philippine materials on models acceptable in Europe and America; mat and basket weaving; manufacture of other articles from local materials for home use and ornamentation.

Other departments may be established as the occasion arises for the introduction of instruction in special subjects in line with the industrial development of the country.

The Bureau of Education is pressing the development of manual training throughout all the schools within its jurisdiction. Trade and manual training schools are being established at the provincial capitals, and industrial work of varied character is being introduced in to all primary and intermediate schools. It is desired to make the Philippine School of Arts and Trades the active center of the system of industrial instruction for the Islands. Each department will serve as a model for all schools undertaking similar work throughout the provinces. Furthermore, in this center Filipino instructors must be prepared in the various lines to go out into the field as specialists to introduce and develop in their respective towns the work in which they attain proficiency. That is, the Trade School in Manila is to be the central normal industrial school of the Philippines.

The training of the hand as a necessary complement to the training of the mind, has been recognized and advocated by Pestalozzi, Froebel, Herbart, Locke, Rousseau, Spencer, and many others of the world's greatest educators. Germany, Switzerland, and other progressive nations of Europe have for some years been laying much emphasis upon industrial instruction.

Throughout the United States, the necessity for the introduction of such work into the public schools is coming to be recognized, and a decisive change in school methods is resulting. The well-known desire of the Filipino people to keep abreast of the times will command to their favorable consideration the promotion of manual training as an essential feature of educational work in the Philippines.

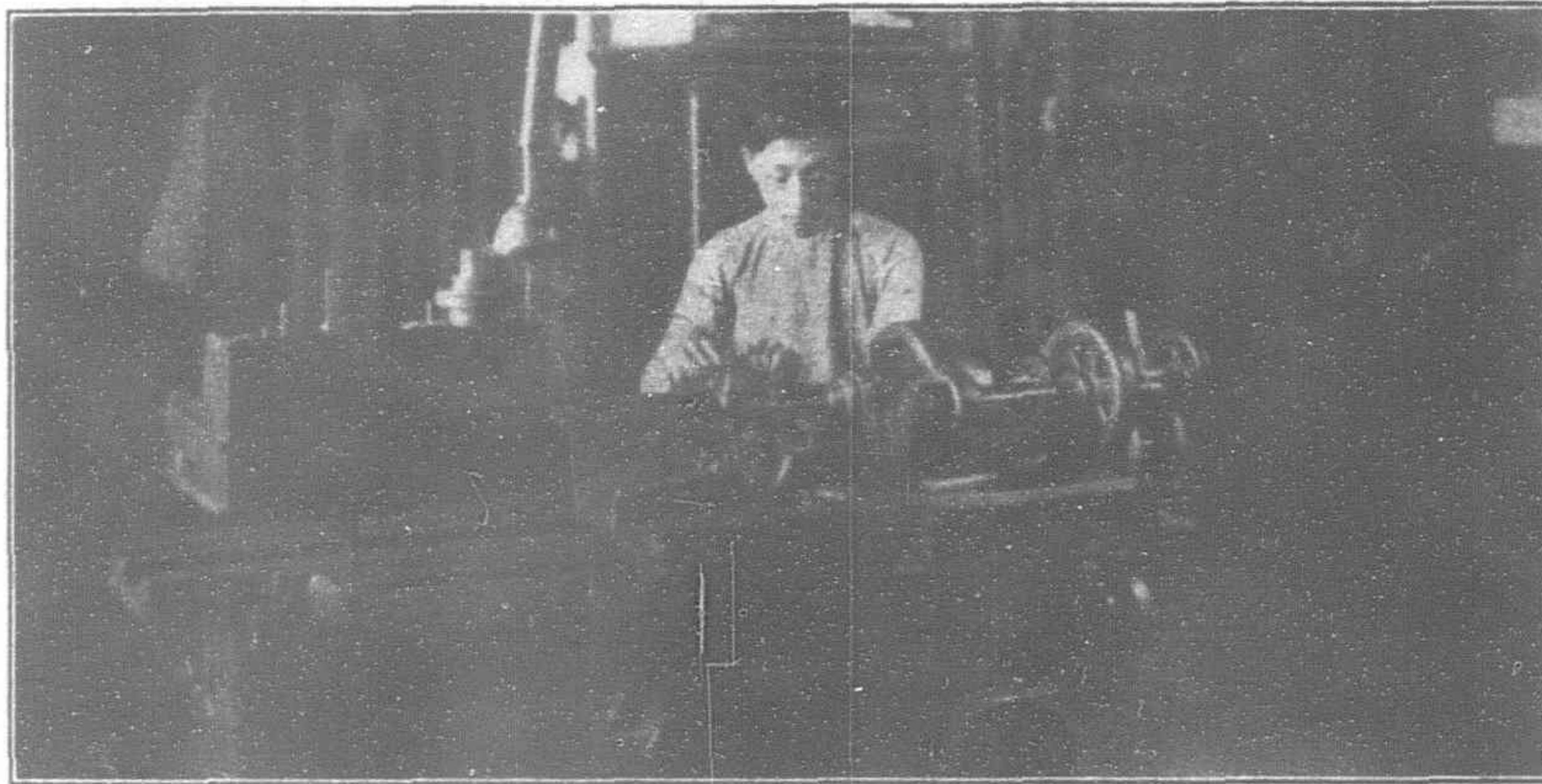
If the present program is zealously pursued here, it is perhaps not going too far to venture the assertion that within two or three years from this date, no state or national government will have in practical operation a system of industrial instruction more consistent than that of the Philippines in its sequence through the various grades, or more closely adapted to the material conditions and requirements of the country. The construction of a new plant for the Philippine School of Arts and Trades as now advocated will go far toward the accomplishment of this end. In fact, the appropriation of funds for the erection of new buildings for this school is considered absolutely necessary in the prosecution of the present educational program of the government.

The sum of P500,000 was appropriated by the Legislature for the construction of Insular school buildings in the city of Manila. The Governor-General allotted P275,000 of this sum to the new dormitory. The remaining P225,000 is inadequate for the construction of the necessary Trade School plant. Another petition will therefore be prepared for presentation to the next Legislature asking for further appropriation in the sum of P175,000 to complete the amount originally requested.

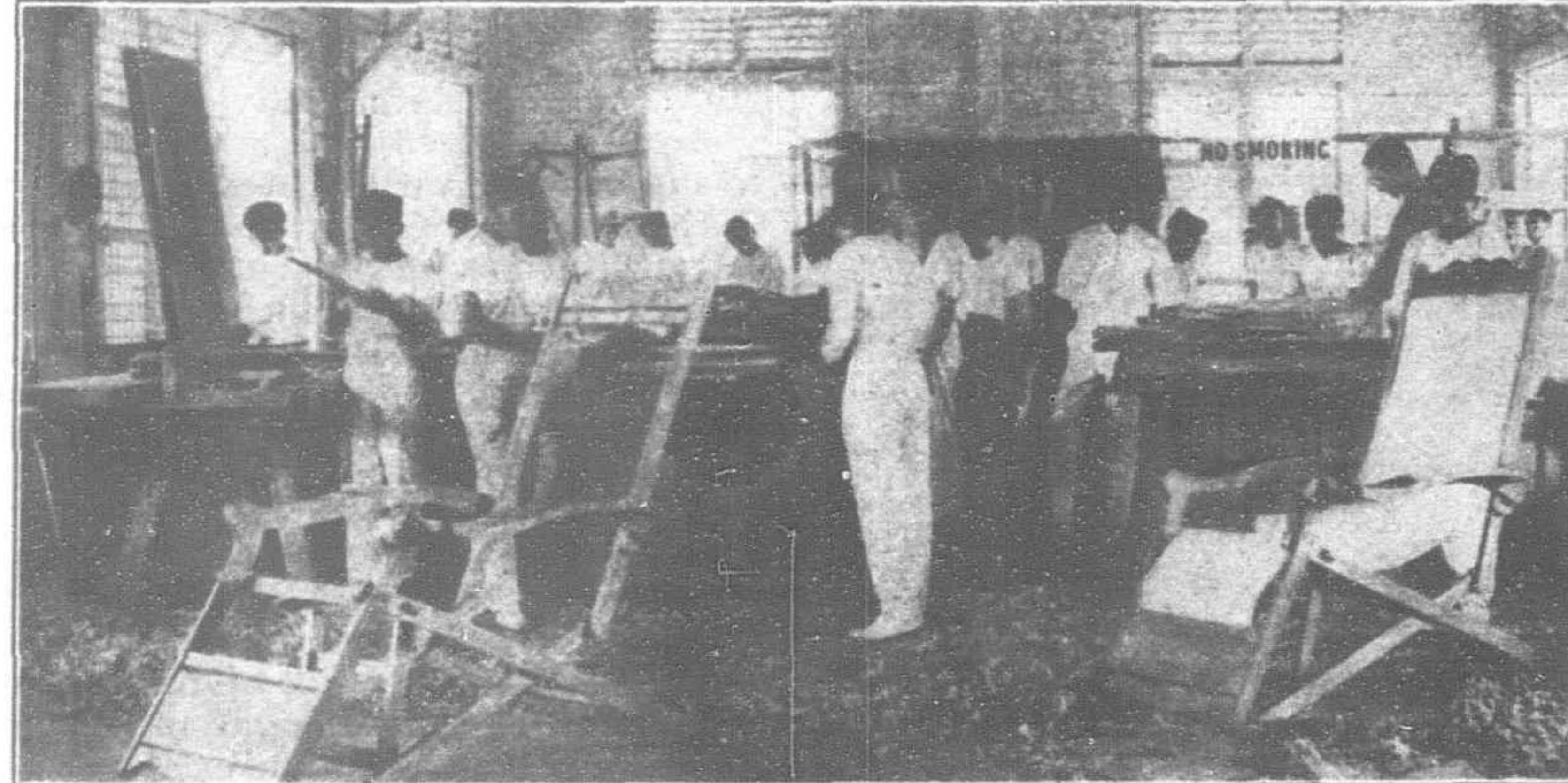
SPECIAL FEATURES OF THE SCHOOL YEAR 1910-11.—*Arbor Day.*—The observance of Arbor Day is an important annual event in the Bureau. During the past school year no less than 600,000 trees were planted by the children of the public schools under the direction of their teachers. Very many of these died for want of proper attention, but at the close of the year, some months after the planting, more than 300,000 trees are reported as being alive and in good condition. The aesthetic and economic benefits accruing to the people of these Islands as a result of the tree planting of a single year can not be easily estimated.

Postal Savings Bank Contest.—On October 19, 1910, it was stated in a circular from this office that the Governor-General had announced that certain Americans interested in the welfare of the Filipinos had given a sum of money in commemoration of the visit of the Secretary of War, which would be distributed as prizes to encourage savings among school children and teachers. Teachers were instructed to advertise to all pupils the purposes of the Postal Savings Bank, and to inform them of the conditions of this competition. One of the requirements was that only money earned by the depositors during the period of this competition should be counted in the award of prizes. The contest closed on March 31, 1911. Results were secured in 34 school divisions. The total number of depositors, including Filipino teachers and pupils, was 13,728; the total amount of deposits was P33,585.02. The period of the competition was so brief that it is unlikely that lasting habits of saving were formed by many of the competitors, but it is certain that every one of the more than thirteen thousand depositors, and a very much larger number of their friends and relatives, are familiarized with the purposes of the savings bank and the manner of making deposits therein. Moreover, insistence on the part of the large corps of teachers and superintendents upon the value of thrift must have a permanent result even greater than would be indicated by the large figures quoted above.

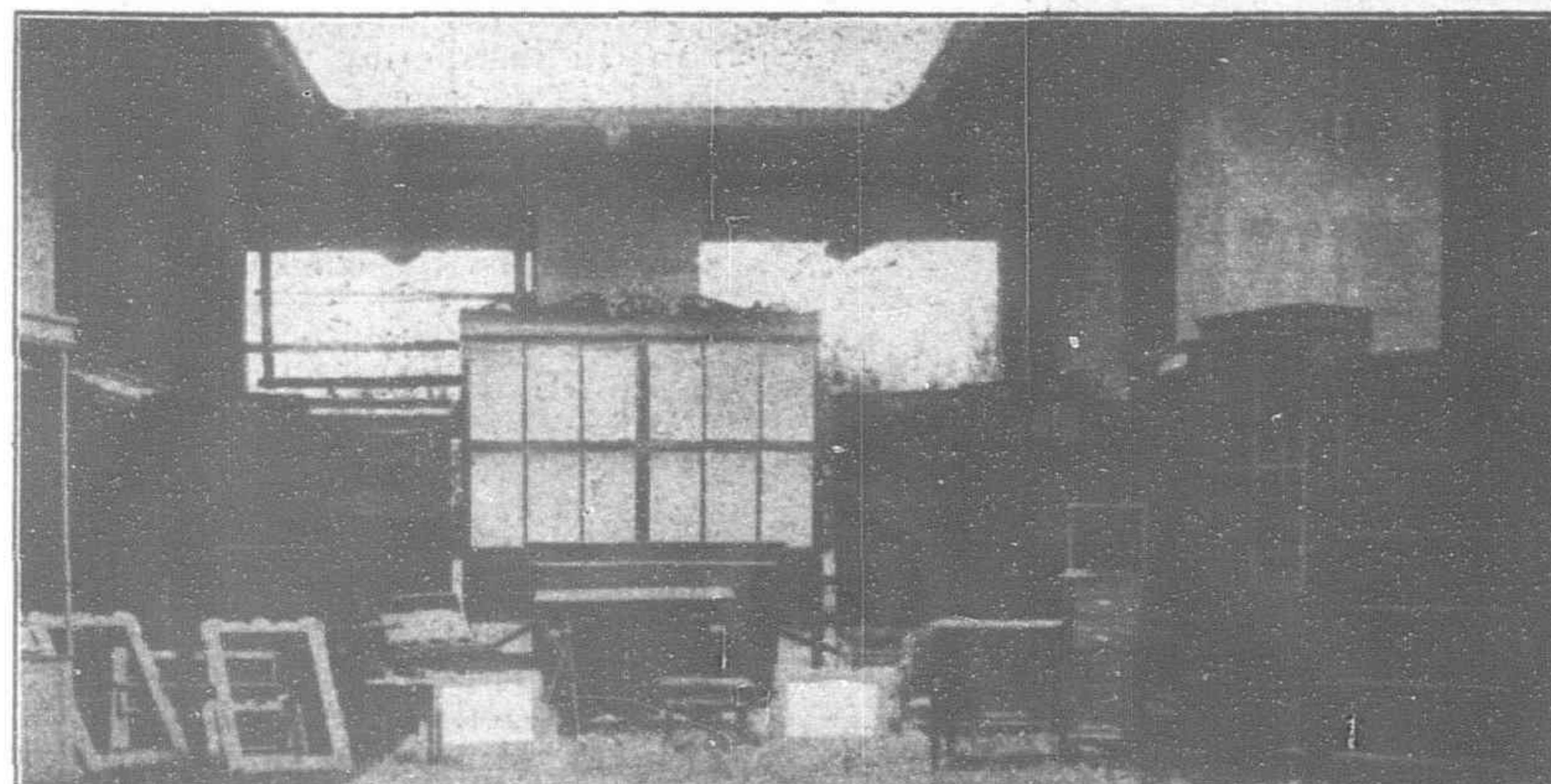
Industrial Instruction.—Under the discussion of courses of instruction in this report, something has been said of the scope and purpose of industrial instruction as now incorporated in the educational program of this Bureau. The chief problem of the year in this connection has been to standardize the various lines of industrial work throughout the Archipelago. Certain teachers and schools have achieved marked success in special lines of work: Manila has set a high standard in embroidery; Albay has mad



M CHINE IRON WORK AT THE PHILIPPINE SCHOOL OF ARTS AND TRADES



CLASS IN WOODWORKING, SORSOGON PROVINCIAL TRADE SCHOOL



FURNITURE MADE AT THE LAGUNA TRADE SCHOOL DURING VACATION



INDUSTRIAL PRODUCT OF THE GUBAT CENTRAL SCHOOL, SORSOGON



A CLASS OF PUPILS AT WORK IN THE SCHOOL GARDEN AT SAN MIGUEL, BULACAN. NO. 3



VEGETABLES GROWING ON THE BATAK SCHOOL FARM. ILOCOS NORTE. NO. 1



AN EXHIBIT AT THE 1911 CARNIVAL. NO. 2

baskets which are unsurpassed; Union has developed a system of school and home gardening throughout the province; Iloilo has perfected a commercial accounting system in the trade

school; the Philippine School of Arts and Trades has produced articles of furniture which are models in construction and finish; and Pampanga has made a real success of the manufacture of

jellies and preserves from Philippine fruits. The chief problem of this office has been to become familiar with what has been done in each special line, to compile information and instructions with respect to the industrial processes involved, and to pass this information on to every school division in such a manner as to secure prompt and effective adoption of the accepted standards throughout the field. To this end the following means have been employed:

1. Official circulars have been prepared in the General Office and sent out to superintendents and teachers for their information and guidance. These contain, in many cases, definite suggestions and instructions with respect to administration and methods. For example, circular of this office No. 123, series of 1910, prescribes, coordinate with similar instructions from the Insular Auditor, regulations on "Accounting for funds and property in provincial trade schools and manual training schools."

2. A considerable number of publications have been issued during the past year which have to do with specific phases of industrial education. In this connection see the section of this report under the caption "Publications". In the near future an industrial magazine will be established to be known as "The Philippine Craftsman."

3. Insular industrial inspectors and supervisors have been designated whose business it is to visit the various provinces and municipalities under the direction of this office and, through consultation with superintendents and teachers, assist them in bringing their work up to the prescribed standards. One such inspector concerns himself solely with the organization and instruction of trade and manual training schools; another is engaged upon similar work and supervises also primary industrial instruction; a third is inspector of school gardens and grounds; a fourth is engaged in setting before our personnel, by means of provincial visits, the highest standards yet developed by the Bureau in needlework and basketry, and, through expert knowledge of economic fibers of the Philippines, is putting the teachers into touch with the wealth of fiber materials to be found in their various districts; still another supervisor is employed with assistants in instructing provincial teachers in the detail of certain minor school industries; a sixth inspector is employed in repairing and resetting trade school machinery at provincial capitals, and in examining, checking, and reporting upon the condition of industrial tools and equipment.

4. Provincial industrial supervisors have been appointed in many provinces as assistants to the division superintendents in extending primary industrial work throughout their respective divisions and bringing its various lines up to approved standard.

5. Industrial exhibitions have been held, chief among them being the Carnival exhibit of 1911. This Bureau occupied the largest and most attractive building on the Carnival grounds, with 16,000 square feet of floor space; 10,000 articles were exhibited from every province in the Islands; sales and orders amounted to over ₱11,000. Superintendents and indus-

trial teachers attending this exhibit were enabled to compare the product of their own schools with that of others, and so acquire information on the basis of which they might direct their work more effectively in the future.

6. Conferences of industrial and supervising teachers have been held in Manila in connection with the Carnival and at the Vacation Assembly at Baguio. All phases of the industrial problem were discussed by them at length.

acter and enable him to acquire a measure of skill in manual exercises. But, though this training of the child is the object and purpose of the instruction, the clearest evidence that tangible results are being secured lies in the product of the pupils' hands. So in speaking of results of industrial instruction, we shall refer to particular things that have been done by the pupils, and specific instances are noted as illustrating what is being generally accomplished.

School boys in a hundred towns of the Phil-

Tanauan, with the effect that importation of baskets to that district has ceased.

The industrial school at Capiz has introduced and developed the slipper-making industry in that community. Slippers to the estimated value of P4,000 were sold during the year.

Through school influence, 1,072 gardens were established during the past year at the homes of people in Union Province. In November, 1910, an inspection of Albay Province developed the fact that many vegetables and fruits, capable of easy production in that district, were very scarce or entirely unknown. Small tomatoes and egg plants were sold at prohibitive prices. Fruits also seemed to be unknown, other than the banana. Of a class of 63 pupils, only three had eaten papaya, and two had eaten radishes; but lettuce, pechay, and ochra, and many other common vegetables and fruits, were unknown. After the date of that inspection, 470 school and home gardens were developed in that province, with pronounced effect upon the food supply of the people.

In the non-Christian province of Bukidnon, every school has 4 hectares of land inclosed and under cultivation. Its school farms are models of cleanliness and order, producing an abundance of rice, camotes, and other substantial foods, with which the people were meagerly supplied before these schools were established.

The school farm at Batac, Ilocos Norte, sent to Manila, and had on exhibition throughout the week of the 1911 Carnival, a crop of vegetables superior in size and quality to anything ever appearing in the Manila markets.

Upon the initiative of the Philippine School of Arts and Trades and through the agency of provincial trade schools, a type of furniture is being generally introduced superior in finish to anything manufactured by the commercial concerns of this city.

The provincial school of Pampanga exhibited at the last Carnival more than 600 samples of jellies, jams, and preserves made from Philippine fruits, as illustrative of practical school work in developing a new industry and new articles of diet for the Filipino home.

The output of embroidery from primary and intermediate schools in these Islands is voluminous, and very superior in character. As the art is further developed, substantial financial returns will be realized.

These cases will serve to illustrate the sort of thing that is being accomplished in the industrial classes of the public schools; but as indicated at the beginning of this paragraph, the highest results of industrial instruction are those which have to do with the molding of the character and life purposes of the pupils concerned.

Athletics.—In former years the schools have served to extend general athletics, and particularly baseball, throughout the Islands, and to stimulate popular interest in sports; but the last year has witnessed a far more comprehensive, organized movement toward placing them upon a uniform basis in all sections.

Baseball was learned from soldiers in the early days of the American administration, and was at first confined chiefly to the larger towns. More recently, however, fostered by the schools, this sport together with general athletics has spread throughout the entire Archipelago, reaching the most isolated barrios. A traveler through the provinces finds the national American game played in the vacant lot next every barrio school, and it loses not one whit in the strength of its appeal to boy nature by its transfer from the American atmosphere half way around the world to the Orient tropics. Interprovincial meets bring together not only the strength, skill, and fleetness of the competing teams, but attract their friends, old and young, from all near-by villages and from adjacent provinces. Not uncommonly thousands of people—literally, the whole population—for miles around, with many visitors



STUDENTS PLOWING AT THE CENTRAL LUZON AGRICULTURAL SCHOOL,
MUÑOZ, NUEVA ECija

7. A pensionado system is in effect by which more than two hundred young men and women come in from their provincial towns for instruction in Insular schools. Each of these receives training in at least one line of industrial work.

8. The courses of the Normal School and Trade School are so framed that the regular students of these institutions are definitely prepared to go out to the field, upon completion of their work, and serve the Bureau in a very effective way in the promotion of the industrial program.

Some Results Showing Effective Work.—In stating that the system of industrial instruction is securing results, it may be understood that reference is made to the increasing familiarity of the pupils of the public schools with the industrial processes to which they have been introduced and increasing efficiency in performing the prescribed exercises. The purpose of the instruction is, of course, primarily to give the pupil a certain training in mind and char-

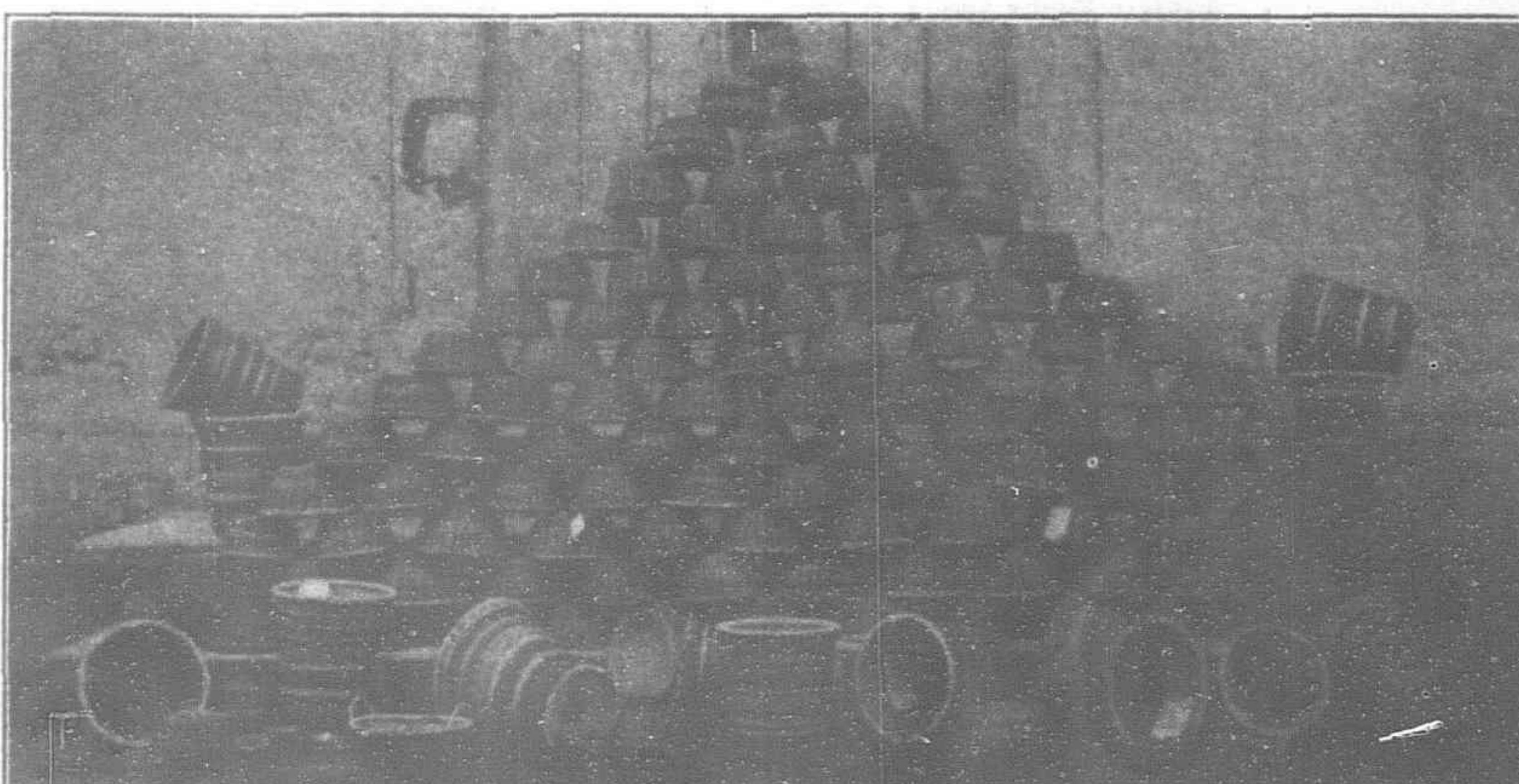
ippines are wearing hats made by themselves. The hat exports from the Philippine Islands increased from 621,475 in the fiscal year 1910 to 1,025,596 in the fiscal year 1911. What proportion of this increase is due to school influence cannot be definitely stated, but the schools have had much to do with it, and the result is going to be far greater in the future.

Igorot girls weave the cloth and make the clothing which they wear in school.

Probably, more than half of the desks and tables in the primary schools of the Philippines have been made by the pupils.

The primary schools of Albay are able to deliver 1,000 salable baskets on a month's notice.

A year ago, the baskets used to contain the oranges exported from Tanauan, the center of the finest orange district in the Philippines, were all imported from towns outside of that district. Teachers of the public schools went to the towns where these baskets were made, learned how to make them, and, through the medium of the children, introduced the new industry at



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